

In this Issue: THE CONEY ISLAND BOULEVARD RACES.
AUTOMOBILE PROGRESS and the RECENT ANNUAL SHOW.

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The Automobile

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BEFORE THE RACE: FOURNIER AND KEENE.



THE
AUTOMOBILE
NY

THE CONEY ISLAND BOULEVARD RACES.

ASSEMBLING AT PROSPECT PARK PLAZA FOR THE PARADE.



FIG. 1. ALBERT C. BOSTWICK.



FIG. 2. BOSTWICK GOING AT FULL SPEED.

Some Sensational Automobile Records.

The first American automobile races to be held over a straightaway course resulted on Saturday, Nov. 16th, in a truly sensational smashing of records. Over an accurately measured mile on the Coney Island Boulevard, Brooklyn, nineteen vehicles of all classes was sent, one at a time, tearing down the track in the presence of not less than 20,000 spectators, and when the trials were brought to a close the mile had been covered in under 60 seconds by three different vehicles, of which the Mors racer of Henri Fournier fell short of a 70-mile an hour gait by barely three-fifths of a second. The other two also were gasoline vehicles, belonging respectively to Foxhall P. Keene and Albert C. Bostwick; but in the electric and steam classes also new records for this country were made, and the skeleton electric racer of A. L. Riker did the mile in 63 seconds, beating every other vehicle with the exception of the three named.

Each vehicle was given a separate flying start, and to offset the fact that the road surface lacked a little of being perfectly smooth, the course was chosen so as to give the racers the advantage of a slight down grade in the first quarter of a mile. The timing was managed by the United States Signal Corps. At the start and finish lines a rubber hose containing a copper strip and a copper wire attached inside its top and bottom respectively was stretched across the road. These were connected with two telegraph sounders in series, one at the start and one at the finish, so that the wheels of any vehicle passing over the line would close the circuit through the copper strip and wire. Both sounders acted simultaneously, and three expert timers at each end of the line caught the times with split-second watches.

Preceding the races was an automobile

parade, starting from Prospect Park Plaza, in which over one hundred vehicles took part. The races were sched-

ers, as had been promised, for the purpose of communicating between the starting and finishing points. It was three o'clock before the club officials were able to find a couple of Morse operators to handle the keys, and in the short two hours remaining before darkness fell it was impossible to complete the program. The championship finals were consequently not run off, and the club decided to award the cup on the basis of the times made in the several classes. To make matters worse, various irresponsible contestants persisted in running up and down the course and across the timing wires, in defiance of the rules and of repeated orders to stop; and the resulting confusion caused by the sounders ticking when they should have been silent made it necessary to repeat a number of trials, and several vehicles even failed to have their time taken at all. It is expected at this writing



FIG. 3. S. T. DAVIS, JR., IN HIS LOCOMOBILE RACER.

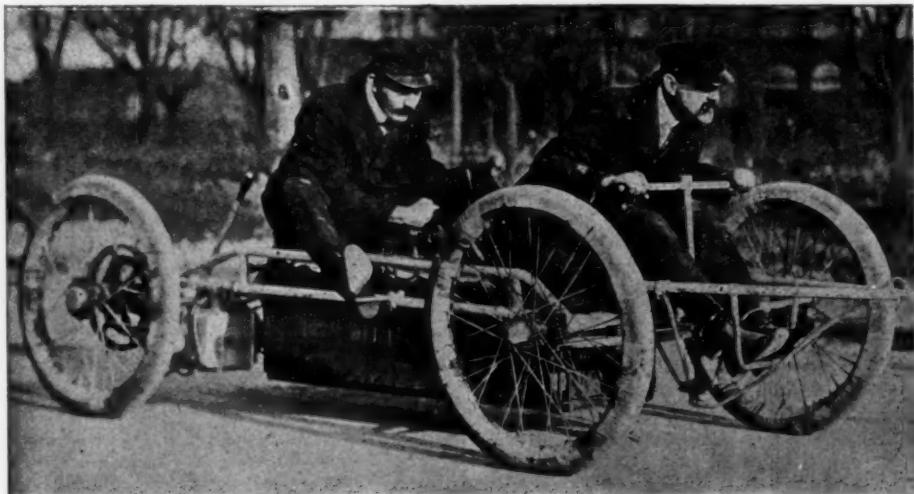


FIG. 4. A. L. RIKER'S ELECTRIC RACER.

uled to begin at one o'clock, but a long delay was caused by the failure of the signal corps to provide expert telegraph-

ers, as had been promised, for the purpose of communicating between the starting and finishing points. It was three o'clock before the club officials were able to find a couple of Morse operators to handle the keys, and in the short two hours remaining before darkness fell it was impossible to complete the program. The championship finals were consequently not run off, and the club decided to award the cup on the basis of the times made in the several classes. To make matters worse, various irresponsible contestants persisted in running up and down the course and across the timing wires, in defiance of the rules and of repeated orders to stop; and the resulting confusion caused by the sounders ticking when they should have been silent made it necessary to repeat a number of trials, and several vehicles even failed to have their time taken at all. It is expected at this writing

that these latter vehicles will be given another chance.

When at length the police, who were

stationed every few yards along the course, cleared the roadway and forced the reckless back upon the cycle path, the two hours' wait was well atoned for. The steam class was started first, and the first place was easily won by S. T. Davis, Jr., with his double-boilered Locomobile racer. Davis' best time was 1.15, a time which made all previous American records for steam carriages look very cheap indeed. Great speed was made also by Thos. D. Dewitt and B. L. Wright.

The heavy gasoline machines were next started. Bostwick, with his Winton stripped of every superfluous part, made the first attempt. He came and was gone in a flash, leaving a thin swirl of dust behind him, and a great cheer greeted the announcement of his time—56 2-5 seconds. Foxhall Keene was next, with a

start with more than express-train speed the cry of "Here comes Fournier!" was more effective than a squad of policemen in clearing the road. With a roar of exhausts the machine flashed by, and for the twinkling of an eye, before it grew small in the distance and was veiled by the dust, the spectators could see Fournier, muffled in a huge fur coat, lying straightened far back in his seat. Then he was gone, and only two dark tire tracks in the gravel, interrupted in spots where the wheels had bounded from the ground, told of his passage. On his return he was surrounded at the grandstand by an impatient crowd. When, with the air of being disappointed that it was not better, he vouchsafed his time—52 seconds—an amazed silence was followed by frantic cheers. He tried again, a few

do better than a minute. Louis Charley, driving H. P. Whitney's blue Mercedes Daimler, made a mile in 1.08.

Sandwiched in among the steamers was A. L. Riker's skeleton racer. This singular machine, which is little more than a battery platform on wheels, wriggled over the course in the surprising time of 63 seconds. It had come and gone almost before one could see it, and its time, fast as it was, would probably have been three or four seconds better but for an S curve which Mr. Riker was compelled to make just at the start to avoid the crowd.

The Madison Square Garden Show

The second annual automobile show in Madison Square Garden, New York, Nov.



GENERAL VIEW OF THE MADISON SQUARE GARDEN SHOW.

speed apparently equal to Bostwick's, but some muddle in the timing gave him only 1.21 4-5, and he returned to try again. Then came Fournier, and as his blue racer came down the slight grade from the

minutes later, as did also Bostwick and Foxhall Keene, and he succeeded in cutting his time just 1-5 of a second. Foxhall Keene, on his second attempt, did the mile in 54 2-5, but Bostwick was unable to

2-9, was conspicuously successful, both as an index to the progress of the industry in the twelve months past, and in point of sales. Partly, perhaps, by reason of the absence of the track, there were fewer of the merely sight-seeing class present, and the attendance as a whole was a little less than last year. The sales, however, were very large, one company—the Winton—reporting orders for no less than a hundred vehicles, and many of the more desirable machines bringing fancy prices from spot cash buyers. The trade as a whole was admirably represented, not more than three or four important concerns being absent.

The loan exhibit was well filled, and there were several vehicles there of the highest power and most modern type, including Albert C. Bostwick's 40-HP. Winton racer, a 40-HP. Panhard touring car belonging to W. C. Greene of New York; Foxhall P. Keene's Mors racer, and the celebrated "White Ghost," now the property of Edward R. Thomas of New York. The first "Locomobile" and the first "Gasmobile" were loaned by their manufacturers.

MOTOR BICYCLES.			
Name.	Maker.	HP.	Time.
Robert Atkinson	Waltham Mfg. Co.	4	1.35
MOTOR TRICYCLES.			
De Dion-Bouton Motorette Co.	De Dion-Bouton Motorette Co.	8	No time.
Kenneth A. Skinner	De Dion-Bouton Motorette Co.	11	No time.
GASOLINE, UNDER 1,000 POUNDS.			
Jacques Longez	De Dion-Bouton	10	{ 1.27 3-5 1.27 4-5
GASOLINE, 1,000 TO 2,000 POUNDS.			
Lloyd Warren	Panhard-Levassor	12	No time.
Percy Owen	Winton Motor Carriage Co.	12	{ 1.53 3-5 1.59 2-5
C. F. Straem	Panhard-Levassor	7	1.57 2-5
GASOLINE, OVER 2,000 POUNDS.			
Foxhall P. Keene	Mors	40	{ 1.21 4-5 0.54 2-5
Albert C. Bostwick	Winton Motor Carriage Co.	40	{ 0.56 2-5 1.00 3-5
Henri Fournier	Mors	40	{ 0.51 4-5 0.52
L. Charley	Daimler	35	1.08
J. Wesley Blair	Panhard-Levassor	16	1.43
STEAM.			
Thomas D. Dewitt	Locomobile	4 $\frac{1}{2}$	1.33 1-5
J. M. Fiske	Locomobile	4 $\frac{1}{2}$	No time.
S. T. Davis, Jr.	Locomobile	4 $\frac{1}{2}$	{ 1.15 1.16 3-5
B. L. Wright	Grout Bros.	4	1.56 4-5
Lawren Abraham	Locomobile	4 $\frac{1}{2}$	No time.
W. J. Stewart	Locomobile	3 $\frac{1}{2}$	1.57 1-5
ELECTRIC.			
A. L. Riker	Riker		1.03
SUMMARY OF RECORDS.			

THE AUTOMOBILE.

Automobile Progress and the Show.

The Madison Square Garden Show, held in the month just closed, easily surpassed expectations in its revelations of the progress made in American automobilism. The list of exhibitors alone would furnish good evidence of the industry's expansion, and it is interesting to note that the increase in the number of exhibitors over last year was close to 22 per cent., being 83, as against 57. Among the manufacturers of vehicles, eleven names in last year's list did not appear in this, excluding those concerns like the Trinity Cycle Mfg. Co., which now bear another name, or like the Riker Co., which has been absorbed by another concern. It is safe to say, however, that with not more than one or two of this list does absence mean retrogression or failure; while on the other hand the show lately closed contained the names of fourteen or fifteen concerns, several of them new, which have not till now exhibited automobiles in New York. Most notable among these may be mentioned the Century Motor Vehicle Co., Vehicle Equipment Co., Lane Motor Vehicle Co., Milwaukee Automobile Co., Searchmont Motor Co., F. B. Stearns & Co., Geo. N. Pierce Co., and Upton Machine Co. In addition, the new firm of Smith & Mabley, which has lately been organized to introduce the Panhard, Peugeot and Renault gasoline vehicles from France, must not be overlooked. A year ago the advent of this last company would have been an event of the first importance, and even to-day, when American builders have made astonishing strides towards the standard of perfection set by the French makers, the appearance of the Panhard agency will be most acceptable news to those who desire a foreign vehicle but cannot go abroad to secure it.

GASOLINE VEHICLES.

It must be acknowledged at the start that, reversing the situation in 1900, the first place in point of improvements made during the year was taken by the gasoline rather than the steam vehicles. The tendencies noted in these columns last December are seen to-day with even greater plainness. Where a year ago but three or four vehicles carried the motor in front of the dash, ten American builders, including most conspicuously of all the Robinson Motor Vehicle Co. and the Automobile Co. of America, showed vehicles built on this plan; and these by no means exhaust the number of makes in this country which either have or are soon to have this feature.

As was the case a year ago, the more recent concerns are the foremost in adopting the above and other ideas from abroad. This imitation includes not only such points as the substitution of four elliptic or semi-elliptic springs and the suppression of the reach for the formerly universal underframe with full elliptic or X-springs, the adoption of forced circu-

lation for motor cooling by most of the leading builders, an obvious tendency towards amalgamating French with American ideas in the matter of motor control, and an increasing lean towards arrangements which disconnect the clutch and apply the brakes in one and the same motion, but also a commendable and increasing attention to the refinements of motor design in the matter of valves, vaporizers and ignition, to a growing preference for double tube detachable tires, and to a veritable craze for the tonneau. There is a distinct tendency towards the use of side chains, with fixed rear axle and the differential in the countershaft, for the heavy cars, and the use of bevel gear drive for the lighter ones. Wire wheels, among the gasoline vehicles, are rapidly giving place to wood wheels, and this is seen even in some of the lighter vehicles, as well as the heavy ones. Among hubs, the artillery pattern is preferred. The body design is more stylish and also more comfortable, and there is a growing predilection for rakish outlines and a display of controlling levers which a year or two ago would have frightened most buyers away. Wheel bases are lengthening, and the tendency is visibly even in vehicles which carry the motor in the body, to place the centre of gravity further forward towards the front axle. Wheel steering gear has ousted the lever or tiller on nearly all the heavy vehicles, and on many of the lighter ones.

Although foreign practice is so largely imitated or copied, there are few cases in which some American feature has not been retained. For example, the Robinson car, while certainly a far cry from the antiquated and ponderous vehicle, with its mass of machinery permanently deposited on the underframe, which was exhibited by the John T. Robinson Co. last year, has a purely American speed changing gear—the Upton—and uses also the contact spark. The engine, which is of four cylinders, 4 by 6 inches, reverses accepted ideas by having water-cooled heads. This vehicle seems to the writer faulty in that the engine is placed almost over instead of just back of the front axle, and, the transmission gear being next to the engine and being moreover rather light in itself, there is insufficient weight on the rear wheels unless all passengers are aboard. Those who have examined the best foreign vehicles are aware that their center of gravity is not in reality as far forward as it often looks.

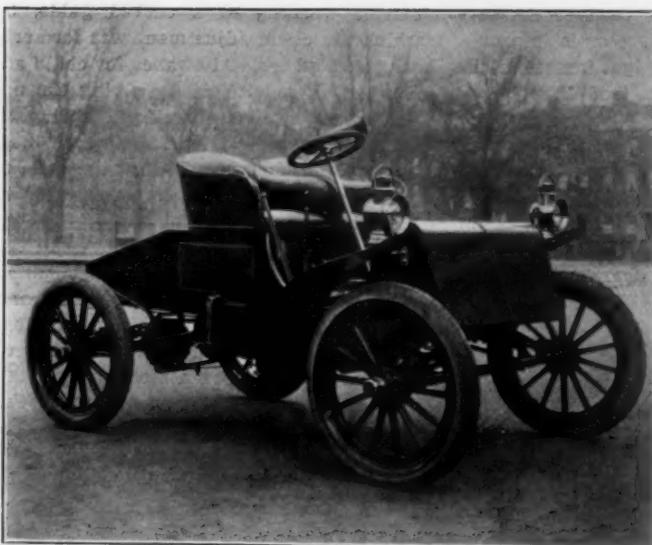
Another conspicuous departure from last year's exhibits was that of the Peerless Mfg. Co., which last year showed a 5-HP. runabout with De Dion motor. This year the company builds its own motors, on lines quite akin to the De Dion, and the outlines of its vehicles are wholly French. It retains, however, the American system of individual clutch transmission, having three forward speeds and one reverse, and which are manipulated by a

lever somewhat resembling that used on the Packard. This company builds its cars with one and two cylinder engines rated at 8 and 16-HP. respectively, and several interesting and original detail features are found in them. Bevel gear transmission with live rear axle is used, and there are two brake systems, the regular brake acting on the longitudinal shaft, and the emergency brakes on bands next to the rear hubs. The steering column is jointed just below the wheel, so that the latter can tilt forward to facilitate mounting, a spring-actuated sleeve holding the column straight. Between the gear case and the bevel pinion is a section of shaft with universal joints, this feature, which till lately, so far as this country was concerned, was confined to the Knickerbocker car built by the Ward Leonard Electric Co., being now common.

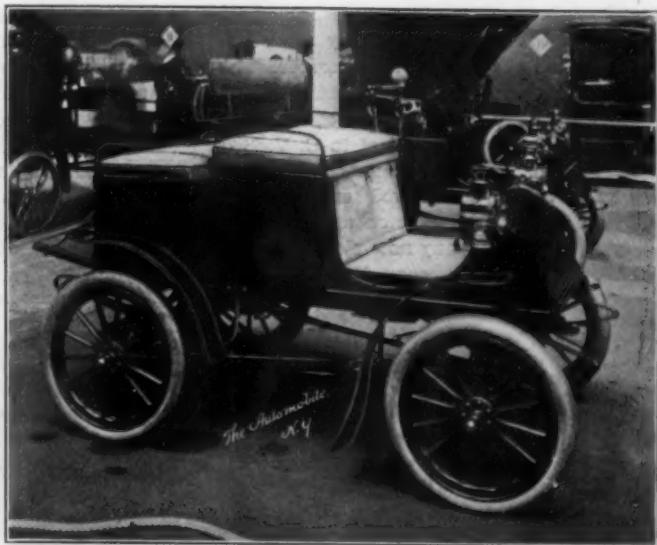
A very taking example of modern runabout design was a 4-HP. car built by the Desberon Motor Car Co., for Mr. J. Dunbar Wright. This machine has a flanged cylinder with water-cooled head, and uses the well-known Desberon jump spark plug. The transmission comprises two speeds and reverse, and differs somewhat from the usual practice in that two clutches are made to serve both for the two forward speeds and for the reverse. These clutches have each two internal shoes, which are forced outward from the center by screws actuated by rack and pinion, somewhat like the clutches of the De Dion 5-HP. vehicles. A sliding pinion on the driving shaft is arranged to mesh with either the slow speed or the reverse, both of which are controlled by one clutch, and is out of mesh altogether when the high speed is in use.

The De Dion-Bouton Motorette Co. showed a very handsome two-cylinder touring car with tonneau body finished in red. This machine is an enlargement of the 8-HP. "Paris" type now familiar, and has double the engine power of the former. Like the "Paris," it has three forward speeds and one reverse by sliding gears, and is rated at a maximum speed of thirty-eight miles an hour.

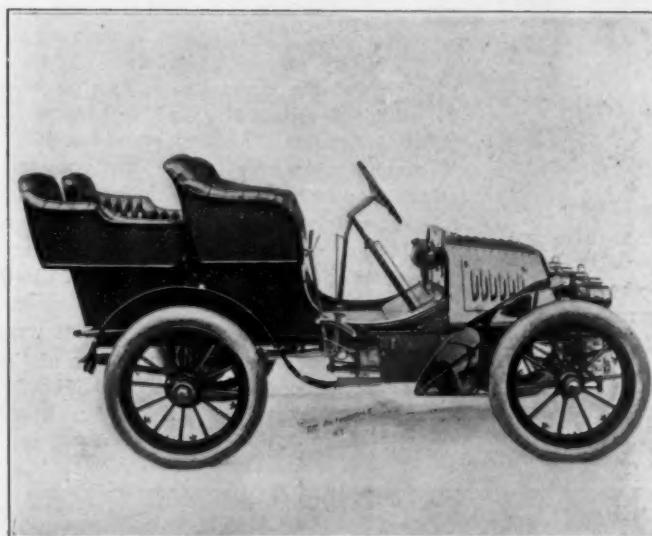
Of the new American vehicles at the show, the closest imitation of the French was the 20-HP. "H. C. Gasmobile" of the Automobile Company of America. This machine has a four-cylinder engine, with cylinders cast in pairs, and has the regular Panhard transmission throughout. A larger car was the 35-HP. "H. C. Gasmobile," by the same company. This machine has six vertical cylinders cast in threes, so that it is quite similar, except in point of size, to two of the familiar triple cylinders "Gasmobile" motors placed in line fore and aft. Like the other machine, it has the Panhard transmission. A new feature, and a very good one, especially where there are so many cylinders to be looked after, is the placing of the igniter cam



THE 1902 PACKARD.



THE AUTOCAR DOS-A-DOS.



THE PEERLESS 8-HP. CAR.



THE SEARCHMONT TOURING CAR.



THE 15-HP. DE DION CAR.



THE DESBERON RUNABOUT.

NEW VEHICLES AT THE SHOW.

THE AUTOMOBILE.

and contact springs in a glass box on the back of the dash, where they are at all times under the eye of the operator. This machine was the subject of some spirited bidding on the opening night of the show, and was finally disposed of to C. V. Brokaw, a New York broker, for \$8,000.

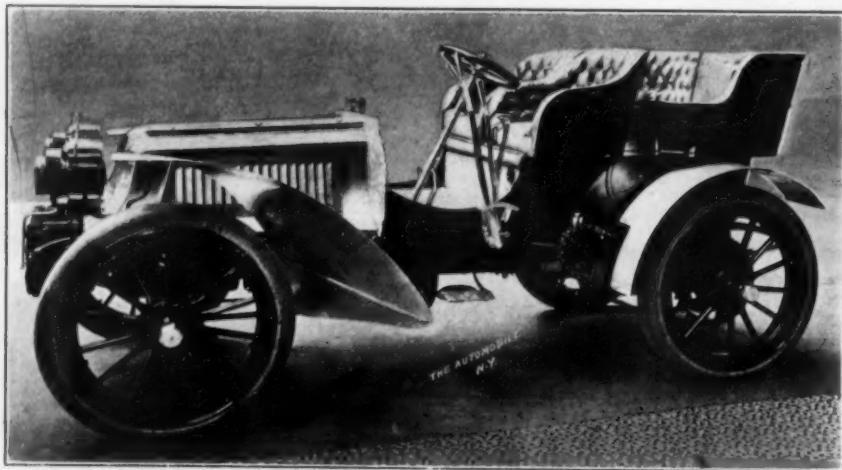
The Autocar Co. showed several attractive models in the phaeton and dos-a-dos styles. This company now places the gasoline tank under a curved box in front, and the radiating coils just below, with as-

applied to drums near each of the rear wheel hubs. The carburetor is improved in detail. Jump spark ignition takes the place of contact spark, and the lead is regulated by hand. Wheel steering is, of course, employed, and the wheel base is of exceptional length, being seven feet. That of the racer is eight feet. The total weight of this car, with tonneau and all supplies, is stated to be 1,920 pounds.

Less radical external changes have been made in the Packard. It resembles the

carrier working in a curved guide, by which the chain adjustment was formerly compensated for. Allowance for chain adjustment is now made by giving the upper halves of the rear elliptic springs a sort of inverted C spring shape, their ends curving downward below the ends of the lower springs and being connected to the latter by links. The motor is practically unchanged, but the rear end of the cam shaft drives a small force pump which supplies oil to the engine and gears. The new Packard, like the new Winton, has wood wheels, and the wheel base of the former also is seven feet.

An attractive display was that of the Searchmont Motor Co. This concern, which is still of comparatively recent date, is making rapid progress in the matter of design. It showed several vehicles comprising its types 1 to 3, the latter of which is the touring car of which three took part in the New York to Rochester endurance run. These vehicles are all of them quite light in weight, power considered, and they are alike in carrying the machinery on the underframe. The engine and the transmission gearing were exhibited separately, and embody some good features. The company has lately announced a new type of light vehicle, which will have the motor carried under a bonnet in the front of the main frame which seems to indicate that the company expects to abandon the principle of direct support. Aside from the Searchmont, the only examples of direct support were found in the very light runabouts of the Geo. N. Pierce Co. and the Crest Mfg. Co. In both of these its justification would seem to be similar to that of direct sup-

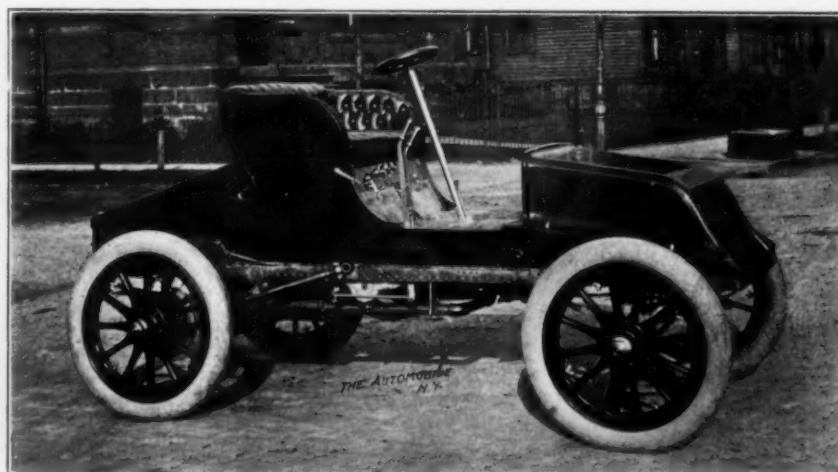


35-HP. GASMOBILE RACER.

bestos between. Wood wheels and Dunlop detachable tires now take the place of the wire wheels and single tube tires formerly used on these machines.

The fact noted last year, that the radical advances of the more recent makers tended to compel similar action on the part of the older and more conservative concerns, was exemplified with striking force in the cases of the Winton and Packard, and to a less degree in the F. B. Stearns gasoline vehicles. The Winton 40-HP. racer has forced circulation and flanged radiating coils, and the makers have gone a step further in the matter of exterior, at least, in the new 15-HP. touring car. This machine, which in general may be called a reduced copy of the racer, embodies the horizontal engine, with two opposed cylinders, the circulatory system and the braking arrangements of the racer. The cooling coils are under a sloping bonnet-like cover with open front, and the water and gasoline tanks are just back of them, also under the bonnet, which is entirely filled by the above items. The Winton transmission gear is unchanged in principle, but the underframe is discarded in favor of semi-elliptic front and rear springs. The speed changing gears and clutches are encased and improved in detail. The main frame, which carries all the machinery, is now of channel steel instead of wood. The construction of the rear axle is the same as formerly, but considerably strengthened, and the single driving chain from the engine shaft to the differential is very heavy. Metal to metal brakes are

Winton touring car, in that the rear of the body is prolonged backward somewhat to bring more weight on the front wheels. The reach frame is suppressed, but the X spring in front is retained, necessitating brace rods at the ends of the front axle. The speed changing mechanism has been radically altered, there being now three forward speeds and reverse by sliding

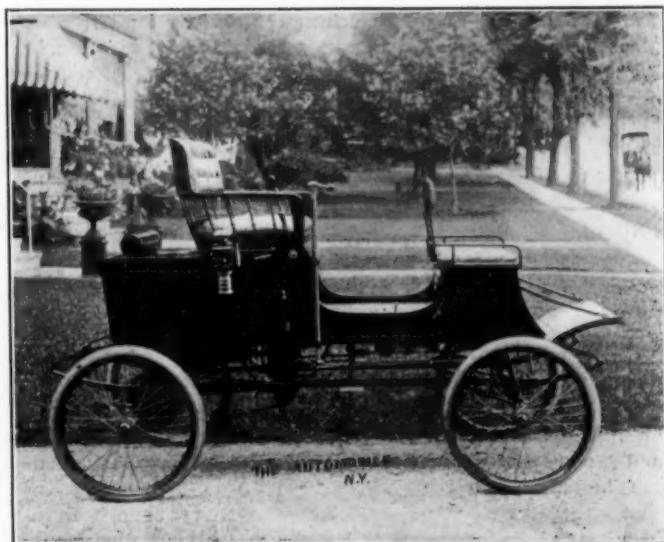


15-HP. WINTON TOURING CAR.

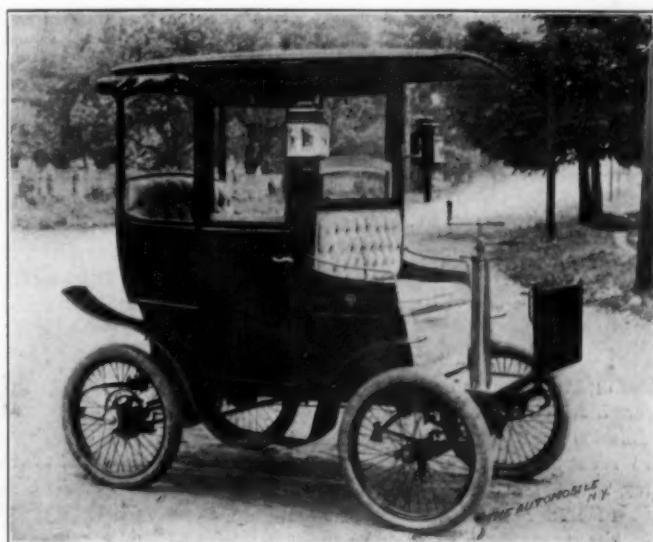
gears. These are controlled by a four-position lever working in an H slot, as formerly, and the clutch, which is next to the flywheel, is engaged and disengaged by a separate lever or by a pedal which works with the lever. The new speed changing mechanism implies also the abandonment of the sliding shaft-

port in the motor tricycle, namely, the extremely light weight of the outfit as a whole and the relatively large size of the tires.

The Knox Automobile Co. showed a four-wheeled runabout with practically the same machinery as in the three-wheeler exhibited last year, but with a



THE PRESCOTT STEAM CARRIAGE.



THE DE DION DEPOT WAGON.



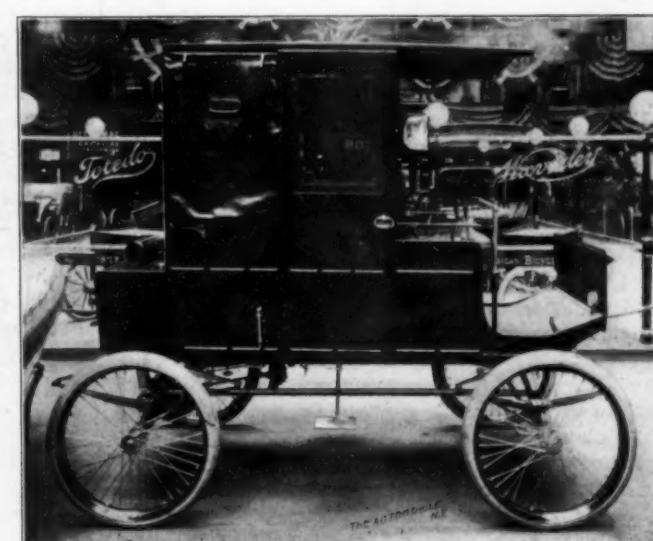
THE VICTOR STEAM SURREY.



THE KNOX FOUR-WHEELER.



THE LOCOMOBILE MODEL B TOURING WAGON.



THE LOCOMOBILE DEPOT WAGON.

NEW VEHICLES AT THE SHOW.

THE AUTOMOBILE.

larger motor, this being rated at 7 HP. The system of spring suspension in the Knox vehicle resembles that used in the Oldsmobile. It is, of course, suited only to light vehicles and moderate speeds, but it has the virtue of simplicity.

The Duryea four-wheeler, which perhaps longer than any other has resisted the invasion of foreign ideas, appear with a slightly altered body design, having a box in front instead of a dash. The wheel base has been slightly lengthened, and is now 66 inches.

STEAM VEHICLES.

Among steam vehicles there are perhaps fewer distinct novelties in the way of automatics and regulating devices than were seen at last year's show, the tendency being more towards the improvement of minor details. The Locomobile now has a steam air pump, started by hand, supplied as an extra to its larger vehicles. Other vehicles of this make have a gasoline pump pumping into a pressure cup, from which the burner is fed, a body of air above the gasoline in the cup equalizing the pressure. This is an option, and appears to be preferred especially for touring purposes.

The Mobile has a new automatic regulator for the by-pass valve, but details of this device are not at present obtainable. The makers consider it so reliable that they have dispensed with the gauge glass altogether.

The Victor carriage shows several modifications of detail, including the substitution of a single lever for the independent knob and button formerly used to start the steam air and steam water pumps. This lever operates the air pump in its forward position and the water pump in the backward position, and it stays where put till returned by hand.

The automatic by-pass regulator of the Steamobile has been discarded, but otherwise this vehicle contains no important changes from last year. This company's new surrey was exhibited at the show for the first time, as was also a Victor surrey by the Overman Automobile Co.

Something of a departure in the line of burners was shown by the Lane Motor Vehicle Co. This burner, which is shown in the accompanying cut, comprises a large transverse mixing tube, from which a large number of smaller tubes branch out at right angles. The large tube is drilled with numerous pinholes, arranged in transverse rows less than an inch apart, and each of the branch tubes is drilled with similar holes along its top line. The branch tubes are about three-eighths of an inch in diameter and have air spaces of a quarter of an inch or less between them. This burner is started by pouring wood alcohol into the transverse tube lapped with asbestos, which is seen in the figure. This tube is drilled with holes, through which the alcohol saturates the asbestos. The alcohol flames warm the double steel

tube just above the asbestos wick, and as these tubes are empty of gasoline at the start, they heat very quickly. When hot the gasoline is admitted to them by degrees, and issues as vapor. Part of this vapor goes into the mixing tube, where it is controlled by the usual diaphragm regulator, and part goes to a blue flame pilot light in the side of the burner under the vaporizing tubes. This pilot light is controlled by hand, and it keeps the tubes hot after the alcohol is spent. The same figure shows the crank shaft and sprocket pinion used in the Lane carriage. This entire piece, except for the crank pins in the crank, is machined out of a solid piece of steel of the size shown in the figure, and it is case hardened and ground after being turned. The engine of the Lane carriage is 3 by 3½ inches and weighs only 57 pounds, its frame being built up of steel.

of this machine too stiff for durability on rough roads, for they now show a new stanhope, designed more particularly for touring, and having, besides a longer wheel base (66 inches), an underframe specially designed for flexibility. It consists substantially of the familiar triangular frame, pivoted to the front axle so that the latter can swivel vertically and two jointed reach tubes connecting the ends of the front and rear axles just inside the wheels. These latter, of course, are necessitated by the transverse spring in front. A lighter machine on the same lines is the Toledo, Jr., runabout, also exhibited for the first time.

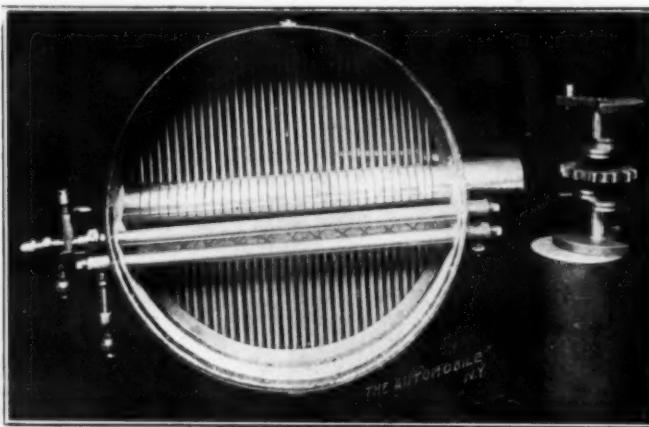
With some striking exceptions, steam carriage manufacturers seem to have concluded that from 800 to 1,000 pounds, including supplies, is heavy enough for a runabout steam carriage for ordinary use.

But although the weight of the runabout seems nearly settled, there is a marked tendency, analogous to that for some time observed in the gasoline field, to differentiate steam vehicles into runabouts and touring vehicles. At least three concerns—the Locomobile and Mobile companies and Foster Automobile & Mfg. Co.—showed powerful touring machines with a box, convertible into a seat, in place of the

dash. One of these, the Locomobile Touring Model B, is, indifferently, a road racer or a touring car, and has an engine of 4 by 5½ inches cylinder dimensions and rated at 10 HP., and a 20-inch boiler. It carries twenty gallons of gasoline and forty-eight gallons of water, and has a wheel base of 73 inches. The engine in the Touring Model A is of 3½ by 5 inches cylinder dimensions, with a 16-inch boiler. It is rated at 8 HP. The same company showed a wagonette seating from six to nine passengers, also of 8 HP., and equipped with emergency brakes on the rear hubs. A victoria, with rumble seat, was another new model, and two sizes of delivery wagons were also shown.

The largest touring wagon was shown by the Mobile Co. This machine, which is shown in an illustration, seats three passengers abreast, or six in all.

A new concern to enter the steam carriage field is that of D. B. Smith & Co., of Utica, well known in another line of manufacture. The "Elite" Victoria, shown by this company, is a vehicle of rather fanciful exterior, but having some interesting mechanical features, among which is a rotating plug valve between the cylinders,



THE LANE BURNER AND CRANK SHAFT.

columns and forgings instead of castings. Two sizes of boiler are used—a 16-inch boiler on the runabout and 20-inch boiler on the surrey.

Another starting device which appears very practical was shown by the Prescott Automobile Mfg. Co. It is in the shape of a detachable alcohol lamp, which may be attached to the bottom of the "generator" in place of the gasoline cup ordinarily used to start the burner. The Prescott carriage has a tall glass tank gauge outside, which shows at once the amount of water in the tank. Two principal styles of vehicle are shown by this company, of which the smaller may be described as a two-passenger runabout, with a folding front seat which may be opened, and the other as a four-passenger carriage, of which the front seat and footboard, normally open, may be closed. The latter machine, which is shown in the illustration, has a slightly longer wheel base than the other.

The American Bicycle Co. showed several models of their Toledo steam carriage. Their Model A is mechanically similar to that shown last year. Apparently the company has found the underframe



THE GENEVA STEAM CARRIAGE.



THE PEUGEOT VICTORIA.



THE "ELITE" STEAM CARRIAGE.



THE STEAMOBILE SURREY.



THE "TOLEDO JUNIOR" STEAM RUNABOUT.



THE "MOBILE" TOURING WAGON.

NEW VEHICLES AT THE SHOW.

THE AUTOMOBILE.

Impressions of the Automobile Show.

A departure from conventional ideas in boilers was the "Salamandrine" water tube boiler, made by J. Holmes & Co., Newark, N. J. In this boiler an outside coil of piping, just inside the jacket, absorbs some heat which would otherwise be radiated and lost. The makers claim to have evaporated the water in it over a fire twenty times in succession, turning cold water in immediately afterward, without causing leakage.

The tubular wheel, which made its first appearance a year ago, was in evidence on seven vehicles this year, all steamers, and in this class of vehicle it seems to be meeting with great favor.

ELECTRIC VEHICLES.

There is little new to be said of the electric vehicles exhibited at the show. One result of the amalgamation of the Electric Vehicle and Riker Companies is shown in the brand new line of vehicles which now takes the place of the frequently conflicting previous styles of the individual companies. The trend of fashion in body designs is clearly apparent here, for some sort of a box has been put in the front of at least six of these new vehicles. In most cases the box is made to contain one-half of the battery, which is thus divided evenly between the front and rear axles, thus marking again the tendency to carry weight forward. A new vehicle was the Baker electric stanhope, on much the same lines as the light Baker runabout which attracted so much notice last year, but of somewhat greater weight.

A specimen cell of the new Edison nickel-iron storage battery was seen in the loan exhibit. The card attached to this battery stated its weight to be 7 lbs. 6 oz. complete, and its capacity to be 120 ampere hours. A specimen grid and also specimen briquettes, both open and enclosed in the perforated cups, were also shown. It is understood that factories are now being installed at Silver Lake and Glen Ridge, N. J., for the manufacture of this battery.

H. L. T.

Anna Held as a Chauffeuse.

The accompanying illustration is from a photograph showing Anna Held in a Waverley electric runabout. The electric vehicle makes an ideal type of ladies' vehicle for city and boulevard use. The photograph was taken in Central Park, New York City.



A CHARMING CHAUFFEUSE

In this connection I would like to say that the motor on a self-propelled car of any kind is not always the source of most trouble. It seems to me that manufacturers would do more toward reaching the desired goal if they would pay a little more attention to the thousand and one little things (outside of the motor) which are liable to cause such annoyance. I refer to tires, pipe connections, non-use of satisfactory nut-locking devices, etc., etc.

Gradually builders are coming to recognize the value of higher-powered vehicles, and the number of carriages shown with horse powers rated at 10 or more, was unusually large. It is a good deal better, it would seem to me at least, to have a machine with just a little too much power for ordinary conditions, than one with just a trifle too little, for one never knows just what extraordinary conditions he is going to meet along our roads. This is especially desirable where one is touring. It is not, of course, so necessary where

one is familiar with what he is likely to encounter in the way of roads, grades, etc.

Another very striking thing as revealed by the show was the adoption of multiple cylinder engines. The advantages of this plan it is not necessary to enumerate. It is a very fine move, and certainly in the right direction.

I was somewhat disappointed at not seeing more wagons of heavy capacity. The truck of the Desberon Motor Car Co. came in for a good share of attention. It looked a few months ago as though this subject of heavy wagons would receive the attention it was thought it deserved, but for some reason American builders are not going into it with much enthusiasm. The use of such wagons must be limited, as after all there are comparatively few places where the conditions are such as to make it pay to adopt them. Transportation by railroads and street railways is so highly developed here as to make the carriage of merchandise along our country roads by means of motor wagons very questionable. Then again, the roads themselves do not especially invite such an innovation. In England, conditions are different. There they had the roads first, the railroads coming later; here the railroads came first, and the good common road has not yet come.

The tendency to copy European practice was very marked indeed, especially in the case of the higher-powered cars.

Regarding the steam carriage builders, it cannot be said that any radical changes over last year's practice have been made. There is really less room for very radical changes than in the case of the gasoline engine. It was, however, noticeable that a good many of the makers had put on heavier frames and wheels—a correct move, undoubtedly, for obvious reasons. Single-expansion engines appear to still be the favorites among steam carriage builders. Some time in the near future, perhaps, the compound engine will be more popular.

So far as the electric carriage is concerned, there is nothing very interesting to relate. Many of the vehicles shown were of last year's style.

For one to get some idea of the progress made within, say, the past 8 years, he had only to look over the machines in the Loan Exhibit. There surely has never been an industry which can show such real, genuine development in so short a period of time as this same automobile industry. The show of 1901 was distinctly in advance of 1900, and it is safe to predict that the one to be held in 1902 will reveal still greater improvement in both design and workmanship. J. J. S.

H. C. Frick, the Pittsburg coke king, has imported a Daimler Mercedes car of 35 HP. It is equipped for touring, and has a tonneau body.

CLUB NEWS AND VIEWS

Club Directory.

Automobile Club of America, S. M. Butler, Secy., 753 Fifth Ave., New York.

Automobile Club of Baltimore, W. W. Donaldson, Secy., 872 Park Ave., Baltimore.

Automobile Club of Bridgeport, F. W. Bolande, Secy., 49 Cannon St., Bridgeport, Conn.

Automobile Club of California, R. R. l'Hommedieu, Secy., San Francisco, Cal.

Automobile Club of Cincinnati, R. H. Cox, Secy., Cincinnati, O.

Automobile Club of Columbus, C. M. Chittenden, Secy., Broad St., Columbus, O.

Automobile Club of Maine, Henry M. Jones, Secy., Portland, Me.

Automobile Club of New England, Geo. E. McQueston, Secy., Brookline, Mass.

Automobile Club of Rochester, Fredk. Sager, Secy., 66 East Ave., Rochester.

Automobile Club of Syracuse, Frederick H. Elliott, Secy., 515 S. A. & K. Building, Syracuse, N. Y.

Automobile Club of Utica, Jas. S. Holmes, Jr., Secy., Huron Building, Utica.

Bloomsburg Automobile Club, C. W. Funston, Secy., Bloomsburg, Pa.

Buffalo Automobile Club, Ellicott Evans, Secy., Lenox Hotel, Buffalo, N. Y.

Chicago Automobile Club, H. M. Brinckerhoff, Secy., Monadnock Block, Chicago.

Cleveland Automobile Club, Windsor T. White, Secy., Cleveland, O.

Columbia College Automobile Club, Lewis Iselin, Secy., Col. College, N. Y.

Dayton Automobile Club, E. Frank Platt, Secy., Dayton, O.

Herkimer Automobile Club, W. I. Taber, Cor. Secy., Herkimer, N. Y.

Hudson County Automobile Club, F. Eveland, Secy., Jersey City, N. J.

Indiana Automobile Club, August Habisch, Secy., Indianapolis.

Long Island Automobile Club, L. A. Hopkins, Secy., 1190 Fulton St., Brooklyn.

Massachusetts Automobile Club, Dr. F. L. D. Rust, Secy., Ashburton Pl., Boston.

National Capital Automobile Club, W. J. Foss, Secy., 819 14th St., N. W., Washington, D. C.

New Bedford Automobile Club, E. G. Watson, Secy., New Bedford, Mass.

New Jersey Automobile Club, Dr. H. Power, Secy., Upper Montclair, N. J.

North Jersey Automobile Club, E. T. Bell, Jr., Secy., Paterson, N. J.

Philadelphia Automobile Club, Frank C. Lewin, Secy., Hotel Flanders, Phila., Pa.

Pennsylvania Automobile Club, H. J. Johnson, Secy., 138 N. Broad St., Philadelphia.

Rhode Island Automobile Club, F. A. Fletcher, Secy., 42 So. Water St., Providence.

San Francisco Automobile Club, B. L. Ryder, Secy., San Francisco, Cal.

St. Louis Automobile Club, John Ring, Secy., St. Louis, Mo.

Troy Automobile Club, J. S. Thiell, Secy., Troy, N. Y.

Worcester Automobile Club, H. E. Sheland, Secy., Worcester, Mass.

The A. C. A. Elects Officers.

The annual meeting of the Automobile Club of America was held at the clubhouse on Nov. 18th. The ticket of the Nominating Committee was elected without opposition, as follows: President, Albert R. Shattuck; first vice-president, General George Moore Smith; second vice-president, Edwin Gould; third vice-president, Harry Payne Whitney; treasurer, Jefferson Seligman. Three new governors were elected, as follows, to serve three years: Albert C. Bostwick, Winthrop E. Scarritt and James L. Breese. The present secretary, S. M. Butler, will be continued in office.

The club now has a total of 351 members, of whom 293 are active.

Boston Clubs Consolidate.

The consolidation of the Massachusetts Automobile Club and the Automobile Club of New England has at length been effected.

The following were elected officers: President, Col. James T. Souter, Massachusetts; first vice-president, Eliot C. Lee, New England; second vice-president, Dr. Joseph C. Stedman, member of both clubs; secretary, Dr. F. L. D. Rust, Massachusetts; treasurer, Royal R. Sheldon, New England; directors, A. W. Stedman, Chas. J. Glidden, Geo. E. McQueston and Henry Howard (New England); and J. R. Bridge, Newton Crane, E. L. Reuter and Dr. W. A. Rolfe (Massachusetts). The new club has about 150 members. It will occupy the Massachusetts Club's house on Boylston St., and will probably use the furniture and fittings from the New England Club's place in Brookline. The dues of the new organization will be \$50 a year.

Moving Toward National Affiliation.

The Automobile Club of America has sent letters to the different local automobile clubs looking toward a national association of automobile clubs, for mutual support in the matter of legislation, road improvement, and race regulation. The following basis for affiliation has been proposed:

First: All contests and races to be governed by the A. C. A. rules.

Second: Disqualification by one club of a participant in any contest or race to be binding on all.

Third: Advocacy of liberal highway laws for automobiles.

Fourth: Protection of the legal rights of automobileists.

Fifth: Improvement of the highways.

Sixth: Furthering the use of the automobile.

Seventh: The exchange of ideas for the betterment of the sport.

Thirty-five clubs have been invited to join the federation.

National Capital Automobile Club.

The National Capital Automobile Club has leased rooms in the Pope Building, 817 Fourteenth St., N. W., Washington, D. C. The club now comprises sixty-five members. Its list of vice-presidents includes, in addition to the three names given in these columns last April, those of Messrs. C. E. Foster and E. L. Weston. Mr. P. L. Lockwood is treasurer.

Speed on Long Island.

The Supervisors of Nassau County, L. I., are making an effort to reduce the speed of automobiles in that county, which they consider dangerous to public safety. A committee appointed by the Board, and composed of State Senator W. W. Cocks, chairman; Samuel M. Butler, secretary A. C. A.; Benj. D. Hicks, of Westbury, and Sidney Dillon Ripley, of Hempstead, has submitted a report on the subject. The committee reports a meeting at which Pres. Shattuck, of the A. C. A., was present, and says that President Shattuck assured them that the A. C. A. would aid them in every possible way to enforce the law. The committee recommends that efforts be made to secure convictions under the present law before advocating a more stringent one, as this would both test the value of the present statute and assist them in securing another, should it be shown that the former is a failure.

Philadelphia Club Parade.

The Automobile Club of Philadelphia organized a parade on Nov. 2. There were thirty-four vehicles in line, and the route was from Walnut St. up Broad St., to Spring Garden St., to Fairmount Park, and along the river road to the Grant monument, where the procession was reviewed by Pres. H. G. Morris.

Eagle Rock Contest.

On election day, Nov. 5, the Automobile Club of New Jersey held a hill-climbing contest at Eagle Rock Hill, near Orange. It was won by W. J. Stewart, in a Locomobile. His time was 2m., 43s., the hill being a mile in length, with grades from 8 to 17 per cent. Among gasoline vehicles C. E. Duryea made the best time, namely 3m., 54s.

There is talk of forming an automobile club in New Orleans.

A road race from Paris to Vienna is one of the events scheduled for next summer. It is promoted by the automobile clubs of France, Germany and Austria, and will start June 15th. Henri Fournier is the first entry, and will be the first to start. Two American entries are Foxhall P. Keene and W. K. Vanderbilt, Jr.

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The Madison Square Garden Show.

No such gathering of automobile interests has before been seen in America as was brought together by the recent show in New York, and none which marked such advances toward the ideal of reliability, safety and speed which mechanical propulsion must inevitably set before us. With the disappearance of the freak vehicle and the growing movement towards common standard of design, and with, at the same time, the subsidence of the wave of extravagant claims and reckless financing which at one time threatened to engulf the yet feeble industry, automobilism has emerged from the infancy of experiment and entered on the growth of vigorous youth.

The spectacular features of track, obstacle contests, and inclined plane, which marked the previous show, were conspicuously absent this year, and this had its effect in the absence of many of the amusement-seekers pure and simple, who were to be seen in such numbers last year. Indeed, the progress of the industry could be traced in the character of the attendance quite as much as in the improvements shown in the vehicles themselves. Last year there were many questioners, most of whom wanted simply to find out how the new vehicles worked, and the buyers, while not few, were still in a minority. This year the elementary grade of instruction was much less in demand, and the visitor who was also an intending purchaser, and needed only to be convinced that the mechanical improvements on A's vehicle were superior to those on B's, was everywhere to be found. The attendants, also, at the various exhibits, appeared to be better acquainted with the machines, which they were supposed to explain than has sometimes been the case, and there was almost none of the attempt at mystery and concealment which the intelligent inquirer found so annoying twelve months ago.

Altogether the show was one which reflected the greatest credit on its sponsors, the Automobile Club of America, and augured most happily for the future of automobilism and of the art.

Timing the Straightaway.

It is much to be regretted that the success of the races on the Coney Island Boulevard, under the auspices of the Long Island Automobile Club, should have been marred by so serious a collapse of the arrangements for timing. The records finally obtained cannot be questioned, but the delays and interruptions were such that many other records which ought to have been obtained had to be sacrificed. As this was the club's first experience in an event of the sort, it ought not to be severely criticised, especially as it could hardly be blamed for the failure of others

to carry out the part of the program intrusted to them. The experience gained on that occasion, however, clearly shows the need of independent wires and instruments for taking the time and for communicating between the starting and finishing points. It shows also the need of stricter rules prohibiting participants and others from crossing the starting lines except when making their trials. As it would probably be impossible to prevent this altogether, it would seem either that the timing wires should not extend clear across the road, or, better, that at each end of the course some one should be stationed whose sole business it would be to open the timing circuit when unauthorized vehicles went over the wires and close it again for legitimate contestants. This would necessitate an independent wire for communication, but we assume that that would be provided in any case.

The Underframe.

No one could compare the automobile show of the month just closed with that of a year ago without being impressed by the great alacrity with which manufacturers of gasoline vehicles have followed certain tendencies which were then only just perceptible. In many cases this was safely to be predicted even more than a year ago from the known superiority of the newer constructions. In this class may be put such items as water circulation, the placing of machinery and body on one set of springs, the substitution of wheel for lever steering, and of multicylinder for single cylinder engines. The transformation even in these particulars is not yet complete, and in each case it would be easy to find one or more concerns of acknowledged reputation who show a leaning towards the other side of the argument.

There are some other points, however, in which the tendency is quite as marked, but in which it may possibly be questioned if the more radical spirits quite appreciate the different requirements imposed by the character of too many of our American roads. In this category, we venture to think, fall such matters as the system of spring suspension, and the violently discussed but gradually disappearing underframe. Where all the roads, or most of the roads, are in good condition, there is very little justification for any sort of a direct connection between the axles. The system of connecting each axle to the main frame by a pair of semi-elliptic springs, which has won out over all others abroad, is as perfect a system as could be found for the conditions there obtaining. It gives each corner of the vehicle a substantial support, and yet one flexible enough to accommodate itself easily to the road surface. But when a vehicle is compelled to wriggle over a track wherein one wheel may not infrequently be ten or twelve inches above or below any of the others, it

may be questioned if it is not really advisable to adopt some method, such as the triangular underframe whose apex swivels in the center of the front axle, to keep the two pairs of wheels in something like alignment with each other without placing too severe lateral strains on the springs, and if, *pari passu*, it is not desirable to adopt the three-point system of support in the body springing, by using a transverse front spring instead of two springs at the sides.

On the other hand, the constructor whose ambition it is to build an automobile which will "go anywhere" will do well to reflect that on such roads as are above alluded to neither speed nor comfort is possible, and that his customers, not being slow to discover this fact, will soon betake themselves to roads whereon comfort and speed may be had, and where the good features of a cattle-trail automobile become mere incumbrances. All of which points to the need for a distinct type of touring car, on the one hand, and to a rapidly growing demand, on the other, for rideable roads everywhere.

The Dust Nuisance.

All riders in automobiles, especially in low and fast machines, have made the frequent and intimate acquaintance of our common ancestor, Mother Earth, in the dusty covering which, seeming to come from nowhere, invests the rear passengers of a car, especially of the now popular tonneau, at the end of a spin of even ordinary length. The dust is as palpable a fact as it is unpleasant, and many are the devices for evading its persistent intrusiveness.

There does not seem to be an entire agreement among riders as to how the dust is carried to the upper part of the body. It has been claimed by some that it is raised, not so much by the wheels, as by the rush and disturbance of the air under the car, an area of high pressure in front being succeeded by an area of less than atmospheric pressure behind, into which the dust is carried by the resulting suction of the air. That such areas of high and low pressure exist is obvious, but the initial raising of the dust is still to be found in the wheels themselves, the broad tires of which flatten at the point of contact with the ground, and carry the dust up with them when they rise, by a species of suction. This is very well shown in the small spouts and swirls of dust following the wheels of Mr. Bostwick's racer in the photograph on another page. These small dust swirls are caught up and spread into clouds by the draught of air back of the car, but before this is accomplished at any given spot, the car has already passed by. The dust which reaches the passengers, we are compelled to think, is the small resi-

duum which clings to the surface of the tires, and being carried to the tops of the wheels, is there blown off and caught in the air currents which circulate about the car.

It seems reasonable to suppose that this latter action, especially so far as concerns the sucking in of the dust at the rear of the tonneau—which attractive form of body seems to be peculiarly subject to the dust nuisance—could be repelled by adequate means for increasing the air pressure behind the car; and wind cowls, arranged to catch a draught of air and direct it downward from the top of the rear end of the body, have been proposed and tried. Another device, which we have seen described by an English contemporary, is to discharge the exhaust from the engine through a large number of small holes opening backwardly from a horizontal transverse pipe just under the floor of the body, at the rear end.

Correction.

Two errors crept into the descriptions of "new styles of automobiles" last month. The Gasmobile Special has speed changes, two forward and one reverse, by individual clutches, like the regular phaeton, but a sliding pinion is arranged to mesh with either the slow speed or the reverse at will, being shifted by a lever projecting from the footboard, and this pinion can be disengaged entirely when the high speed is engaged, thus saving the noise and wear of idle gears in mesh.

The gear changes of the Crestmobile are operated by a lever at the front of the seat, not by the small handle at the top of the steering post. The latter handle regulates the speed of the motor.

The Chicago Automobile Show.

Reports from Chicago indicate that the forthcoming show is to be a success. The management reports that the large number of applications for space has made it necessary to do away with the track, so that at a recent conference between the committee of the club, the manufacturers' association and Mr. Miles, the manager, it was unanimously decided to abandon the track. A new diagram, therefore, has been made necessary. Allotments of space up to November 15 had been made to the following: Locomobile Company of America, American Bicycle Co., De Dion-Bouton Motorette Co., Bachelle Automobile Co., Overman Automobile Co., U. S. Long Distance Automobile Co., Ralph Temple, agent; Olds Motor Works, Ralph Temple, agent; National Vehicle Co., Ralph Temple, agent; Electric Vehicle Co. (South Half), B. F. Goodrich Co., Badger Brass Co., Veeder Mfg. Co., Jos. Dixon Crucible Co., Hartford Rubber Works Co., K. F. Peterson, P. J. Dasey & Co., Holley Motor Co., Goodyear Tire and Rubber Co.

National Association of Automobile Manufacturers.

The National Association of Automobile Manufacturers held its annual meeting in the assembly room of Madison Square Garden on Nov. 7th.

Among the subjects discussed was that of the undervaluation of imported vehicles. No definite action was taken beyond deciding to appoint a committee of three members, one each from Boston, New York and Philadelphia, to be sent to Washington to take up the matter with the secretary of the treasury. Since this meeting a letter has been received from the Treasury Department giving its finding in the cases of undervaluation cited by the association, sustaining its New York agents and requesting the aid of the association in the future on both sides of the ocean.

Mr. McGowan, of the Standard Oil Co., Cleveland, gave a talk upon the subject of gasoline in which he advised manufacturers to attempt using a lower test fuel than 76° test.

A banquet was held in the evening, at which over one hundred were present. General Nelson A. Miles was one of the guests of honor. A resolution was adopted by the association congratulating the Automobile Club of America on the success of its second annual show.

At a meeting of the executive committee Nov. 20th, Mr. J. A. Kingman, of the Locomobile Company, was substituted for Mr. D. S. Walker on the advertising committee, the other two members being Mr. E. P. Wells and Mr. H. Ward Leonard. Mr. A. L. Riker, of the exhibition committee, reported that the association could have Madison Square Garden for the purpose of holding a show during the month of January, 1903. A committee was appointed to confer with the Automobile Club of America in regard to the matter. At this meeting the following officers were elected for the ensuing year: President, S. T. Davis, Jr.; Secretary, E. P. Wells; Treasurer, Percy Owen; First Vice-President, A. L. Riker; Second Vice-President, C. J. Field; Third Vice-President, D. E. Rianhard. The president, vice-president, secretary and treasurer were constituted a committee to procure the executive services of an active manager and to employ him.

It was also decided that the association's attitude on the show question did not apply to national or international expositions, such as the South Carolina and West Indian Expositions, and that all members were free to do as they pleased in regard to exhibiting at such expositions.

Two ordinances were lately passed by the St. Louis, Mo., City Council, one limiting the speed of "horseless vehicles" to 8 miles an hour on the streets and 6 miles an hour in the parks, and the other fixing a tax of \$10 per year on such vehicles.

THE AUTOMOBILE.

The St. Louis Gasoline Runabout.

This vehicle, which made a most creditable performance in the New York to Rochester endurance run, when it ran day after day and stood practically uncouched at night, is the latest production of the St. Louis Motor Carriage Co. The mechanism of the vehicle is clearly shown in the accompanying cuts, from which it will be seen that it has a single cylinder horizontal engine, chain transmission to the differential on the axle, and wheel steering by pinion and gear segment. The engine is rated at 7 HP., and is $5\frac{1}{4}$ in bore by 6 inches stroke. It is shown in detail in Fig. 4, which shows also the speed changing mechanism. The latter is contained in an extension of the crank case of the engine, so that the shafts and gears cannot possibly get out of line. It comprises, in addition to the crank shaft of the engine, two principal gear carrying shafts and a forward shaft used for reversing. In Fig. 4 the gear on the crank shaft is loose, and is gripped by the disc friction clutch A, operated through the bell crank and links by the lever B (see also Fig. 3). Meshing with the above gear is a bronze gear on the first transmission shaft. The latter shaft carries a double-faced sliding pinion, which is shifted to right or left by the bell crank operated by lever C. In the position shown in the figure the larger member of this pinion meshes with a gear almost directly under it, on the shaft carrying the sprocket pinion. This gives the high speed forward. When lever C is pulled forward it shifts the pinions to-

verse, lever C is thrust far forward, carrying the sliding pinions to the operator's right till the larger pinion engages a gear

springs are hinged. These springs are fastened to roller-bearing boxes on the axle, and the distance rods shown in the illustration keep the chain taut and transmit the driving thrust from the axle to the frame. The springs, being in effect hinged at the top and bottom, act simply as supports.

The Motsinger autosparker is used by the St. Louis Motor Carriage Co. for ignition purposes. It is seen mounted on a strap-iron frame above the engine. Gravity circulation is relied on for cooling the tanks being built into the sides of the body, and



FIG. 1. THE ST. LOUIS GASOLINE RUNABOUT.

at the right-hand end (left-hand in Fig. 4) of the idle shaft. This shaft, through the agency of the smaller pinion at its other end, reverses the motion of the sprocket pinion shaft below.

The brake is applied by thrusting forward on lever B, which, in addition to releasing the clutch, acts through the rock shaft at its lower end to tighten the brake shoes. The brake is hinged and double-jawed, with wooden shoes. Another double-jawed brake, with cast-iron shoes, is applied to the differential by a foot pedal. Both brakes are double-acting.

The sliding pinions above described are shifted by a yoke carried by a sliding bar, seen just inside the top of the casing. This bar extends out to the left, in the illustration, just over the link connecting lever B with the bell crank and clutch, and at the point of intersection is a locking device which renders it impossible to shift the pinions except when the clutch is released. Thus the shock on changing speeds is reduced to the minimum. The rear end of the engine is hung from an arched bar which crosses the frame and to the outer ends of which the rear elliptic

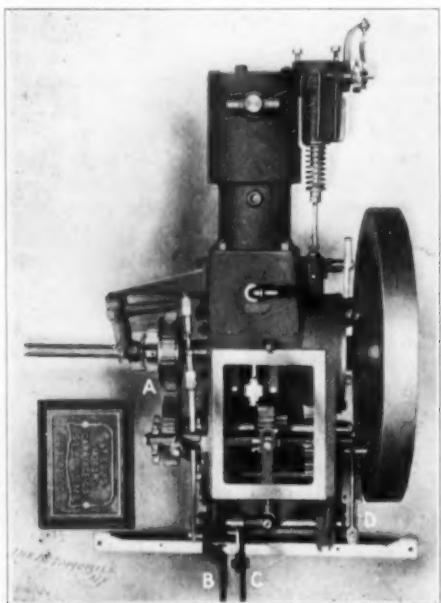


FIG. 4. THE ENGINE.

ward the operator's left till the smaller pinion engages another gear on the sprocket pinion shaft. This latter gear meshes also with a pinion on the reversing shaft, which shaft commonly turns idly and carries at its outer end the brake wheel seen at D in Fig. 4. For the re-

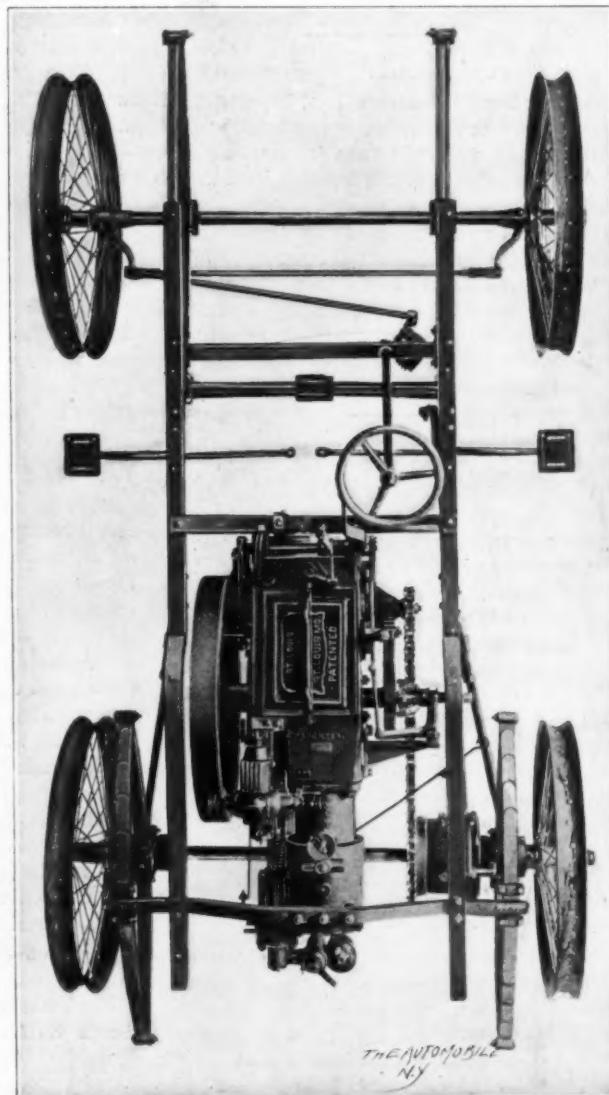


FIG. 2. PLAN OF MACHINERY AND GEAR.

having air tubes through them to assist radiation. The engine speed is controlled by a valve in the float feed vaporizer, the valve being connected by wire to a foot button. Another foot button varies the lead of the spark, which is produced by a make and break igniter instead of the jump spark. For emergency a set of dry batteries is kept in reserve.

All the bearings of the engine and transmission gearing are bronze-bushed, and

and two of the others suffered broken legs. Fournier escaped with injuries to his foot. The first three were removed to the Mineola Hospital, and given the best of care. Fullerton left the hospital Nov. 16th.

The responsibility for the accident does not appear to have been placed. All witnesses declare that the vehicle was moving slowly, and bystanders say that the automatic bell was ringing. As none of the occupants of the vehicle heard the bell,

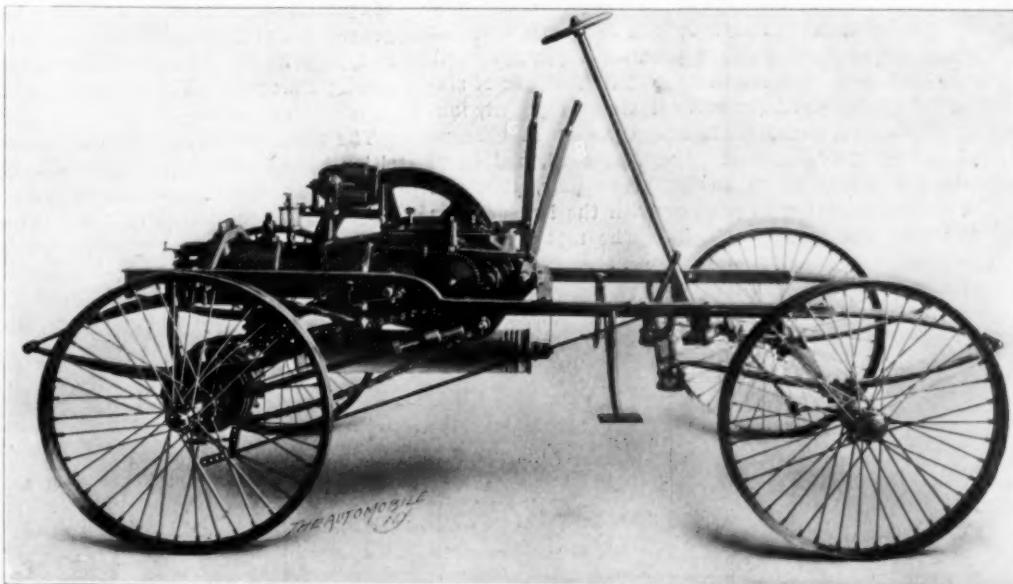


FIG. 3. SIDE ELEVATION OF MACHINERY AND GEAR.

have ring-oilers, making lubrication automatic.

It seems probable that the noise of the motor, coupled with failure to stop, if that was necessary to make absolutely sure, were to blame.

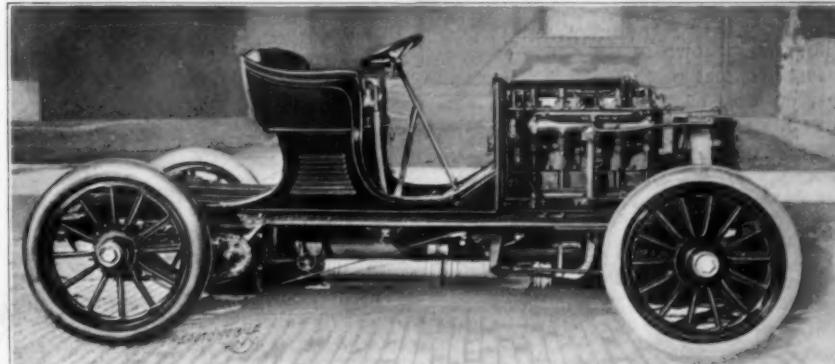
Thermit.

Thermit is essentially a mixture of finely powdered aluminum and metallic oxide. When powdered aluminum in intimate mixture with metallic oxides is adequately heated, it commences to combine with them, forming alumina, and producing intense heat. The process as usually carried out is as follows: A small quantity of intimately mixed oxide

crucible lined with magnesite. The reaction between the aluminum and the iron oxide is started by igniting on the top of that mixture a small quantity of powdered aluminum mixed with an easily reducible oxide, such as peroxide of barium. This combination gives sufficient heat to start the reaction between the aluminum and the oxide of iron, and when this is in progress more of the iron oxide mixture is added in small quantities at a time until the crucible ultimately becomes sufficiently full of a mixture of molten, malleable iron, covered by a slag of melted alumina. The temperature developed is so enormous that the molten iron, which is completely free from carbon, is at the temperature of at least 3,000° C. The molten metal can be employed for welding with almost as much expedition, and with very much less in the way of auxiliary appliances, than is required for welding by electricity. It suffices to juxtapose the ends of, say, two rods that it is required to weld, to make a sheet-iron mould by fire-clay about the joint, and to pour in the

molten metal. The operation can, it appears, be performed with a pint crucible, and when the process becomes better understood generally a thermit outfit will very probably form part of the impedimenta of most automobilists. It would apparently enable them to weld broken shafts or connecting-rods en route without the necessity of having to drag the broken vehicle to the atelier of that not unfrequently rather obtuse and unmanageable person, the village blacksmith.—The Automotor.

Henri Fournier, who, on his Mors racer, covered a mile in 51 4-5 seconds in the



A 40-HP. RACER, BUILT BY THE ST. LOUIS MOTOR CARRIAGE CO.

of iron and powdered aluminum, in the proportion of the combining weights of these bodies, is placed in a refractory

Coney Island Boulevard races on Nov. 16th, is reported to have denied that more machines are to be made in this country;

Fournier in an Automobile Accident

At Westbury, L. I., on October 30th, Henri Fournier and five companions were involved in an automobile smash-up at a railway crossing, from which it seemed little short of miraculous that the party should have escaped without loss of life. Fournier, who was driving a new 10-HP. Mors touring vehicle, was looking for a good piece of road on which to endeavor to make a new mile record with his racer, and among his passengers was H. B. Fullerton, special passenger agent of the Long Island Railroad, well known as a good roads advocate.

The Westbury crossing is unprotected by gates or flagman, but there is a bell which rings automatically on the approach of a train. Either this bell did not ring or it was not heard for the noise of the motor, for Fournier, whose view of the track was cut off by houses on both sides was unaware of the approach of a wild-cat engine till almost under its wheels. He had just time to turn his machine a little down the track, so that the engine struck a glancing instead of a square side blow, when the crash occurred. The machine was utterly wrecked, and most of the men were picked up unconscious. Mr. Fullerton sustained a compound fracture of the skull and severe lacerations of one leg

THE AUTOMOBILE.

The Boston Automobile Show.

Reports from the first automobile show to be held in Boston at the new automobile building on Stanhope street, received just as **THE AUTOMOBILE** is going to press, indicate that it has been a success. There are between 30 and 40 exhibitors and about 60 automobiles shown. The public has taken a great interest in the subject, and the attendance is satisfactory and increasing. The number of gasoline machines predominates, with steam vehicles next. Quite a number of sales are reported.

The building in which the show is held is known as the Automobile Headquarters, and has its own heat and power plant, with an electric elevator capable of hoisting 4,000 pounds. It is five stories and basement with asphalt floors. The Headquarters, as well as the show, are under the management of Mr. P. C. Lewis, assisted by his son Ralph, Geo. G. Reed,

ing car with tonneau body and the motor in front, following throughout the most modern ideas in automobile construction.

Mr. Elmer Apperson states that he will retain his holdings of stock in the Haynes-Apperson Co., though he has withdrawn from its management.

aluminum with the tonneau detachable. The engine is rated at 6½-HP.

The operator in the illustration is F. A. La Roche, of New York, who has lately acquired his vehicle and is very enthusiastic over it.

Notes.

Mr. Henri Fournier, while in New York recently, operated a Toledo steam carriage in and about Central Park. Mr. Fournier spoke in terms of high praise of the ease of operation, quickness to respond and the general all around ability of this vehicle, and bespoke for it a rapid rise in favor among European automobilists.

The managers of the Charleston Exposition have arranged for a two-mile track for automobiles, in connection with the Exposition. Exhibitors will have the use of it for demonstration purposes, and one or



THE NEW HAYNES-APPERSON SURREY.

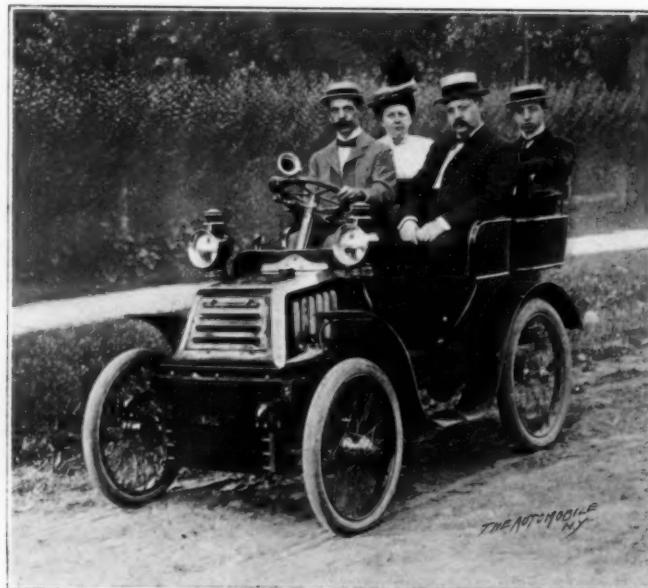
and A. P. Underhill. It is proposed to carry on a salesroom, storage and repair business, making a permanent automobile show, and will carry a large assortment of second-hand machines.

The Haynes-Apperson Surrey.

The surrey shown in the above engraving is the latest product of the Haynes-Apperson Co., of Kokomo, Ind. It embodies the main features of the phaeton illustrated in these columns last month.

A New Move by the Apperson Brothers.

Elmer and Edgar Apperson, to whom the design and development of the well-known Haynes-Apperson gasoline vehicles is chiefly due, and the former of whom was till lately manager of the Haynes-Apperson Co., have recently withdrawn from that concern and will embark in business in Kokomo, Ind., under the name of the Apperson Brothers' Automobile Co. Their first machine will be a 16-HP. tour-



A NEW DARRACQ LIGHT CARRIAGE.

regulated by varying the tension of the inlet valve spring, and the gears are shifted by the short lever on the steering column just below the wheel. The bevel and speed-changing gears are encased and run in oil, and a small pump is arranged to force oil to all other bearings. The engine is self-oiling on the splash system.

Tubing is used for the main frame, which carries all the machinery and is spring-supported; and the body is of

more of them will have a concession to transport visitors about the grounds for a small fee.

A recent circular, issued by the Joseph Dixon Crucible Co., Jersey City, N. J., prints in full a letter from F. C. Donald, president of the Chicago Automobile Club, describing his successful experience with Dixon's graphite and graphite grease in the lubrication of his gasoline carriage.



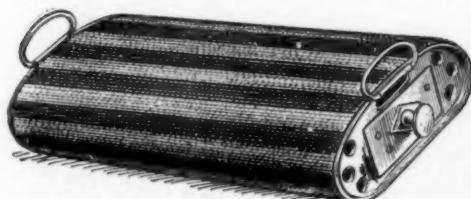
THE "STEAMOBILE" HEADS A KNIGHTS TEMPLARS' PARADE.

The "Harvard System."

The Harvard Automobile Corporation has inaugurated a system of repair and storage stations in Boston and vicinity, known as the "Harvard System." The system embraces at the present time fourteen stations, extending from Hartford on the west, to Portland, Me., on the east, station No. 1 being located at Park Square, Boston. By means of its system the tourist can travel from city to city and be sure of getting the accommodations required at the different stations through an interchange of passes.

An Automobile Heater.

The heater shown in the engraving is manufactured by Lehman Bros., 10 Boni St., New York City. It is handy, neat in appearance, and is especially adopted for automobilists' use in riding during the cold weather of fall and winter. The fuel used is a specially-prepared coal made by the manufacturers, and is the result of many experiments. The manufacturers state that the cost of fuel does not exceed 2 cents per day, a third of a cake of fuel lasting twelve hours, smoke and smell both being entirely absent. Many testimonials from users of the heater attest its popularity, and it is stated that over 150,-



LEHMAN AUTOMOBILE HEATER.

000 are now in use among owners of horse-drawn vehicles and automobiles. The manufacturers will be pleased to give any further information desired.

A Book for the Amateur Gas Engine Builder.

"How to Build a 3-HP. Launch Engine" is the title of a new book by E. W. Roberts, the author of "The Gas Engine Hank-Book." This book is devoted to complete working drawings of a 5 x 6-inch single-cylinder 4-cycle launch engine, together with shop instructions for the amateur. It is a thoroughly practical treatise and can be followed successfully by anyone having the necessary amount of general shop experience, which must be presupposed in any event. The engine is designed practically in to o from the formulas in "The Gas Engine Hand-Book," and is stated by the author to follow in its general lines the accepted types of small automobile engines. Though this, latter is true in a general way, still the engine is very free from the refinements of design found in engines actually intended for automobiles, since these would be very difficult for the amateur to produce.

The book is 12½ x 10 inches, so that the plates are large enough to be clearly legible. It is published by the Gas Engine Publishing Co., Cincinnati, O., and sold at \$2.50. For the accommodation of those desiring full-size blue prints, these are furnished at an additional cost of \$1 when purchased with the book, or \$4.50 separately.

Exhibits at the Madison Square Garden Show.

The Mobile Company of America, Tarrytown, N. Y., showed 12 vehicles of its latest product, including one dos-a-dos trap, two delivery wagons, two surreys, four single vehicles, one wagonette, and two touring machines.

The Locomobile Company of America, New York, showed a loco-surrey, two delivery wagons, a model A touring carriage, new model B touring carriage, its new loco-launch, a stanhope with rumble, a 6-passenger wagonette, a depot wagon, and single carriage finished throughout in mottled white wood designated as special model 02.

The American Bicycle Co., in one end of its space showed two model 21 runabouts, one model 22 top runabout, one surrey and one delivery wagon of the Waverley electric type. In the other end of its space was shown one surrey and eight Toledo carriages, one of the latter of which was brought through from Toledo to the show on road and attracted a good deal of interest. A large glass model of the Toledo siphon water tank filler was also shown.

The Winton Motor Carriage Co., Cleveland, O., showed four gasoline carriages, two of the vehicles being of its new touring model, one with tonneau body and the other without; also one racing machine, an improved pattern of its regular standard carriage.

The Electric Vehicle Co., Hartford, showed a Columbia phaeton surrey and cabriolet, a Riker square front brougham, hansom cab and demicouch, a new Elberon Victoria, the Seabright runabout, Columbia electric tonneau, also its new Riker gasoline carriage.

The Baker Motor Vehicle Co., Cleveland, showed two electric carriages.

The Overman Automobile Co., New York, showed its new steam model Victor runabout, a new surrey, and a new pattern dos-a-dos.

The Peerless Mfg. Co., Cleveland, O., showed three of its new gasoline vehicles, two of them being 16-HP. and one 8-HP.

The Stearns Steam Carriage Co., Syracuse, N. Y., showed its standard steam runabout, a dos-a-dos trap and a surrey.

The Steam Vehicle Co. of America, New York, displayed new patterns of the Readig steam stanhope and surrey; also a standard vehicle with steam connections exposed to demonstrate the operation of the engine.

The Autocar Co., Ardmore, Pa., showed four of its gasoline carriages; two of the model A, one model B and one model C. One of the model A machines was exhibited with skeleton body to show construction.

The Haynes-Apperson Co., Kokomo, Ind., showed its 1902 models of its 6 and 9 HP. two-passenger gasoline carriages.

The Knox Automobile Co., Springfield, Mass., showed one of its standard 3-wheeled machines and a new model 4-wheeled vehicle.

U. S. Long-Distance Automobile Co., Jersey City, N. J., showed four long-distance gasoline machines, type A.

The Fanning Mfg. Co., Chicago, showed one of its standard electric runabouts.

Geo. N. Pierce Co., Buffalo, showed two gasoline motorlettes, one of the knockabout and the other of the runabout type.

Foster Automobile Mfg. Co., Rochester, N. Y., showed a steam doctor's carriage, a surrey and a runabout.

Warwick Cycle & Automobile Co., Springfield, Mass., showed two of its gasoline vehicles.

Crest Mfg. Co., Cambridge, Mass., showed samples of its gasoline engines, also its new type of gasoline automobile, known as the "Crestmobile."

The Searchmont Motor Co., Philadelphia, exhibited five gasoline vehicles, three of which are known as type 2 runabout, and two of type 3 touring cars.

The Automobile Co. of America displayed its various types of gasmobiles, including a 9-HP. stanhope, 12-HP. special, 20-HP. tonneau, and a new 35-HP. 6-cylinder tonneau.

The Duryea Power Co., Reading, Pa., exhibited a Duryea 4-wheeled phaeton.

Robinson Motor Vehicle Co., Boston, Mass., showed two gasoline machines with tonneau bodies.

D. B. Smith & Co., Utica, N. Y., exhibited a steam type of vehicle.

The Ohio Automobile Co., Warren, O., showed two Packard gasoline machines, one known as model C and the other model F.

Smith & Mabley, New York, American agents for the French arm of Charron, Girardot & Voigt showed a 12-HP. Panhard tonneau and a 5-HP. Panhard, also a 5-HP. Renault voiturette and an 8-HP. Peugeot victoria.

The Lane Motor Vehicle Co., Poughkeepsie, N. Y., showed two steam surreys and one standard pattern runabout.

The Prescott Automobile Mfg. Co., Passaic, N. J., showed its new standard type of steam vehicle.

The Steamobile Co. of America, Keene, N. H., showed two steam carriages, one a surrey and the other a trap.

F. B. Stearns & Co., Cleveland O., showed one of their standard gasoline touring carriages of the stanhope type.

The De Dion-Bouton Motorette Co., Brooklyn, showed standard and new types of its gasoline vehicles, including Paris and Paris, Jr., types, Brooklyn 3½-HP. type, a brougham rockaway of the New York type, a New York type surrey, and a delivery wagon.

The Ward-Leonard Electric Co., Bronxville, N. Y., showed its new Knickerbocker gasoline car.

The Century Motor Vehicle Co., Syracuse, N. Y., exhibited one of its new steam stanhopes.

Geneva Automobile & Mfg. Co., Geneva, O., showed two steam vehicles of its latest models, one being a surrey and the other a runabout.

The Desbross Motor Car Co., New York, showed one of its new 4-HP. standard gasoline carriages and a steam truck.

The Automotor Co., Springfield, Mass., showed its 2-passenger gasoline vehicle.

The Milwaukee Automobile Co., of Milwaukee, Wis., exhibited two steam carriages, one a surrey and the other a stanhope.

The Olds Motor Works, Detroit, Mich., showed one of its standard carriages.

The Motor Cycle Mfg. Co., Brockton, Mass., exhibited a motor bicycle.

The Vehicle Equipment Co., Brooklyn, showed a large electric truck built by it and used by the Hall Safe Co. for hauling safes.

The Badger Brass Mfg. Co., Kenosha, Wis., showed models of lamps.

The Diamond Rubber Co., Akron, O., exhibited samples of pneumatic and solid tires.

Chas. E. Miller, New York, showed a complete line of fittings and appurtenances for automobiles. The exhibit included gears, steam engines, gasoline engines, French horns, rubber hose, articles for automobilists' wear, including caps, goggles, etc.

The Metallic Rubber Tire Co., New York, showed samples of tires.

The Porter Storage Battery Co., Chicago, showed electric batteries for automobiles.

The Consolidated Rubber Tire Co., New York, exhibited solid rubber tires.

The Baldwin Automobile Chain Co., Worcester, Mass., exhibited a full line of sample sections of block and roller chains.

The G. & J. Tire Co., Indianapolis, Ind., showed its detachable tires.

The Auto Supply Co., New York, showed steel parts used in the manufacture of automobiles, including spokes, balls, forgings, and a complete running gear, brakes, etc.

The Grant-Ferris Co., Troy, N. Y., showed 10 Howard gasoline launch and vehicle motors, and a sample of its new motor just now being placed on the market.

The Dow Portable Electric Assistant Co., Boston, exhibited a line of batteries, coils, ammeters, spark plugs, etc.

The New York Belting & Packing Co., New York, exhibited samples and sections of its long-distance tire.

The India Rubber Co., Akron, O., showed an extensive line of carriage and automobile tires, including solid, cushion and pneumatic.

THE AUTOMOBILE.

The Veeder Mfg. Co., Hartford, Conn., showed its line of cyclometers and odometers.

The Post & Lester Co., Hartford, Conn., showed an extensive line of parts and fittings.

The American Roller Bearing Co., Boston, Mass., showed a very complete line of its standard bearings.

Gray & Davis, Amesbury, Mass., exhibited some 15 styles of acetylene and oil side lights and head lights.

The Munger Vehicle Tire Co., Brunswick, N. J., showed its line of pneumatic tires in sizes from 28 ins. to 44 ins.

The Rose Mfg. Co., Philadelphia, showed nearly 50 styles of its lamps.

The Gleason-Peters Air Pump Co., New York, displayed a variety of pumps and compressors for automobile use.

Janney, Steinmetz & Co., Philadelphia, showed samples, including boiler shells and heads, seamless steel tanks for water, compressed air, etc.

The Midgley Mfg. Co., Columbus, O., showed samples of its tubular steel wheels, both entire and in section.

The Hydra Double Battery Co., New York, showed samples of its batteries used for sparking gasoline engines, furnishing current for search lights, etc.

The Joseph Dixon Crucible Co., Jersey City, N. J., showed a complete line of graphite lubricants especially adapted for automobile use.

The American Ball-Bearing Co., Cleveland, O., showed a number of wheels equipped with ball-bearings of its make.

The John Simmons Co., New York, showed a line of samples of special fittings for automobiles.

The Goodyear Tire & Rubber Co., Akron, O., exhibited a complete line of its standard detachable tires.

The R. E. Dietz Co., New York, displayed a complete line of its well-known lamps especially designed for automobile service.

Adam Cook's Sons, New York, exhibited samples of its Albany grease especially adapted to automobile service.

The International Automobile & Vehicle Tire Co. exhibited samples of its semi-pneumatic tire.

The Upton Machine Co., New York, showed its new double cylinder motor coupled to an Upton transmission gear.

The Twentieth Century Mfg. Co., New York, showed various types of acetylene and oil lamps.

The B. F. Goodrich Co., Akron, O., exhibited single and double tube tires.

The Buffalo Gasoline Motor Co., Buffalo, N. Y., exhibited two 4-cylinder gasoline motors of 7 and 12 HP., respectively.

The Model Machine Co., showed samples of its ball-bearing vehicle tire and the Winans gasoline engines for automobiles.

The New Process Rawhide Co., Syracuse, N. Y., showed specimens of rawhide gears and pinions.

J. Holmes & Co., Newark, N. J., showed a sample of the Salamandrine boiler.

The Noers Mfg. Co., Waterbury, Conn., exhibited automobile head lights, lamps, etc., oiling cans, water glass mirrors, and wrenches.

The General Power Co., New York, exhibited two of its generating plants.

The Hartford Rubber Works Co., Hartford, Conn., exhibited samples of the Hartford single tube pneumatic, Dunlop detachable, and Turner endless solid tires.

The New Jersey Automobile Co., Newark, N. J., showed samples of its new double-acting hand brake for automobiles.

Coe, Smith & Co., Boston, exhibited samples of its new non-puncturable tires called "Punctnot."

The Wheel-Within-Wheel Co., New York, showed different sizes of its new wheels; also a gasmobile fitted with the wheels, for demonstration purposes.

The New York Automobile Exchange, New York, displayed a line of automobile coats, leggings, caps, goggles, and other articles for automobilists' wear.

The Holland Automobile Co., Jersey City, N. J., showed a line of air and water cooled motors and running gears.

The Shelby Steel Tube Co., Pittsburg, Pa., exhibited a line of seamless cold drawn steel tubing for automobiles.

The Mechanical Tire Co., Westfield, Mass., exhibited samples and sections of its carriage and automobile tire.

The Electric Contract Co., New York, showed samples of its gauge glass lamp fitted to a Toledo steam carriage.

The Standard Welding Co., Cleveland, O., showed samples of tubes, rims, etc., welded by its process.

Smith & Co., 185 Sumner St., Boston, exhibited at the Madison Square Garden show a 28 x 2½ inch tire—the largest size, thus far made—which was said to have been run deflated 1,500 miles. It had been indented, but not cut, by the edges of the rim. A special point is made in this tire of the introduction of extra rubber between the plies of fabric next the rim edges, this being claimed to render the tire less liable to crack and burst at these points.

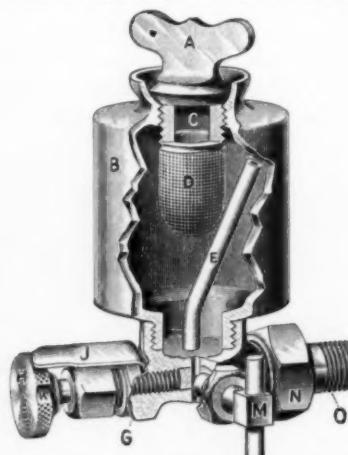
A Cylinder Lubricator for Steam Carriages.

The illustration shows a new lubricator for steam carriages which has been put on the market by the Lunkenheimer Co., Cincinnati, O. It is designed to overcome difficulties formerly experienced in adjusting the rate of feed and in



THE "PUNCTNOT" TIRE.

canvas and the air tube. This fibre is very tough though soft and light, and it compresses and mats together under a sharp point or edge, instead of being cut by it. It is elastic, and is claimed to have been subjected to a pressure of 100,000 lbs. per square foot for a month, and to have returned to its original bulk when the pressure was removed. It is also claimed that by the use of this fibre the tire is spared from immediate injury should a collapse occur; and the agents, Coe,



THE LUNKENHEIMER STEAM CYLINDER LUBRICATOR.

filling. It is provided with two valves, H and M, the former to regulate the feed and the latter to drain the cup of condensed steam when the oil supply is exhausted. To fill the cup, the former is closed and the latter opened; the filling plug is then unscrewed about three turns. After the water is drained, valve M is closed and the cup filled. The feed may then be adjusted by unscrewing valve H, and when the latter is correctly set, the spring-dog J may be adjusted by

Searchmont.
MOTOR CO.,
1229 Orkney St., Philadelphia.

To the Leading Automobile Dealer,
Everywhere.

Dear Sir:--Do you want the agency for a Gasoline Automobile that has no superior?

We want the best dealer in every city. You may say we are particular. We are, write us and we will tell you why.

"A progressive dealer represents a progressive manufacturer."

Yours very truly,
SEARCHMONT MOTOR COMPANY.

loosening lock nut G and turning it till the spring snaps into the notch K. In this way the oil may be shut off at will from H and the latter returned at once for its normal open position. The filling plug is made with two slots, C, so that it does not require to be entirely removed for filling, thereby preventing loss.

Business News.

Banker Bros., of Pittsburg, have reorganized as the Banker Bros. Co., with a capital of \$50,000.

The Crest Mfg. Co., Cambridge, Mass., has been incorporated under Maine laws with a capital of \$50,000.

The Wisconsin Wheel Works, Racine Junction, Wis., has issued catalogue No. 9, describing the Mitchell bicycles and motor bicycles.

The Standard Roller Bearing Co., Philadelphia, recently issued a new catalogue descriptive of its bearings. The catalogue contains over 60 pages and is complete and useful to all interested in the subject.

The Baker Motor Vehicle Co., Cleveland, O., has issued a new catalogue illustrating and describing its electric runabout and stanhope. The various parts, including gear, etc., are also illustrated. The catalogue has a rich cover and is well printed.

Phineas Jones & Co., Newark, N. J., recently received an order for wheels, the metal hubs for which were received at 9 a.m., Oct. 31st. The spokes were turned to special pattern. Dunlop tires put on, crated, and wheels shipped complete at 4 p.m., Nov. 1st.

The J. Stevens Arms & Tool Co., Chicopee Falls, Mass., is one of the latest to take up the manufacture of automobiles. The vehicle which the company has commenced to manufacture is entitled the Stevens-Duryea. The company is well known in the manufacture of fire arms and fine mechanical tools.

The Sprague Electric Co., New York, recently issued a very handsomely illustrated bulletin No. 201, showing the applications of Lundell motors, which it manufactures. The motor is now in use

for nearly every service and is especially designed for electric automobiles where high efficiency and durability are desired. Copies of the bulletin may be had for the asking.

Phineas Jones & Co., Newark, N. J., the well-known maker of wheels for automobiles and other vehicles, have issued a rather unique calendar in colors. It is entitled "Making Up His Deposit," after the well-known painting by Witkowski. The firm will be pleased to send one to any reader of THE AUTOMOBILE on receipt of 4 cents in stamps to cover the cost of mailing.

A gold medal was awarded by the Pan-American Exposition judges to the well-known American Steam Gauge & Valve Mfg. Co., Boston, Mass., manufacturers of steam gauges, pop-safety valves, Thompson indicators, and engine and boiler fittings. The exhibit of this company at the Exposition was among the most striking of its kind, and attracted very general notice.

The Shelby Steel Tube Co. has removed its general offices from New York City to Pittsburg, Pa. The company made an exhibit at the recent show of its tubes for flash boilers, heater coils, etc. The company reports that it is highly pleased with the show, and the large number of orders secured for its products for experimental purposes in flash boiler construction. A number of orders were also received for regular tubes for automobile gears and axles.

The E. R. Thomas Motor Co., Buffalo, did not exhibit at the recent show at Madison Square Garden, and assigns as a reason for not doing so that it did not favor the season of the year for a show of this sort as it allows competing manufacturers to take advantage of all the improvements shown in bringing out their own new models. The Thomas company announces that it is preparing to bring out something new and of original design in the spring.

The Geneva Automobile & Mfg. Co., Geneva, O., reports the business outlook to be very promising for the forthcoming year. At a meeting of the directors recently the future policy of the company was decided upon. Mr. A. Thompson, the superintendent of the company, resigned at this meeting, although retaining his financial interest in the company. The name of Mr. Thompson's successor has not yet been announced, although negotiations are under way for a first-class man.

A New French Weekly.

"La Locomotion" is the name of a new French weekly edited by L. Baudry de Saunier and Gaston Sencier, and published by Dunod, 46, Quai des Grands-Augustins. The first number contains articles by Baron de Zuylen de Nyeveld, President of the A. C. F.; M. Abel Ballif, President of the Touring Club of France, and M. Gustave Rives, President of the Chambre Syndicale. Chas. Jeantaud contributes an article on the several methods of throttle control, which is coming into vogue in France as an improvement on the hit-and-miss and retarded spark systems; and there are technical descriptions of a new Buchet motor of four cylinders and 40 HP., and of the "Electricia," a new French electric carriage. There are sixteen pages of reading matter, and the illustrations and press work are very good. The foreign subscription is 25 francs or \$5.00.

Patents.

List of Automobile Patents granted during month of November.

- 684,953—Automatic pumping device. Issued to W. F. Singer.
- 685,087—Automobile running gear. Issued to F. L. Balcomb.
- 684,836—Carbureter. Issued to G. Machlet, Jr.
- 685,235—Carbureter. Issued to Gromer & Wright.
- 684,787—Motor cycle. Issued to W. Buckley.
- 684,930—Motor vehicle mechanism. Issued to Hanauer & Veitch.
- 684,793—Motor vehicle. Issued to F. S. Coles.
- 684,833—Speed changing device for self-propelling vehicles. Issued to H. Lemp.
- 685,658—Automobile driving mechanism. Issued to R. H. White.
- 685,504—Carbureter. Issued to Bole & Ruud.
- 684,570—Self-propelled vehicle steering device. Issued to J. H. Bullard.
- 685,540—Vehicle steering mechanism. Issued to A. Thompson.
- 686,229—Locking device for steering mechanism of automobiles. Issued to A. L. Kull.
- 685,903—Carbureter for explosive engines. Issued to F. Le Blon.
- 686,046—Motor carriage. Issued to H. Ford.
- 686,235—Motor carriage running gear. Issued to Morgan & Edmondson.
- 686,080—Motor road vehicle. Issued to A. C. Mather.

Smith & Mabley

513 Seventh Avenue

New York

The Panhard-Levassor

Michelin

Tires

Accessories

The Mercedes

The Peugeot

The Renault

Billy Gas

Lamp

and

Searchlight

Storage

Repairs

686,102—Motor vehicle steering mechanism. Issued to W. A. Maybach.
 686,284—Motor cycle. Issued to E. F. Gottschalk (now E. F. Stratton).
 686,256—Speed changing and reversing gear. Issued to H. E. Brown.
 686,361—Motor vehicle driving gear. Issued to H. Spurrier, Jr.
 686,310—Road vehicle motor attachment. Issued to H. J. Lawson.

NOTICES.

Cards "Wanted" and "For Sale" inserted under this heading at two cents per word, same measure. Minimum price, fifty cents.

FOR SALE—BARGAIN.

One 5½lb.-HP. De Dion motor. Perfect condition. Has been used in Motorette two months. Motor complete. Address BARGAIN, CARE THE AUTOMOBILE, 150 Nassau St., N. Y.

AUTOMOBILE PROPOSITION.

Manufacturer or capitalist wanted to manufacture automobiles of great merit. Safer and better in many respects to present systems. EMIL HESSE, 35 Broadway, New York City.

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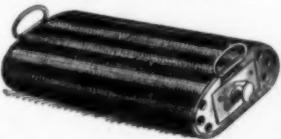
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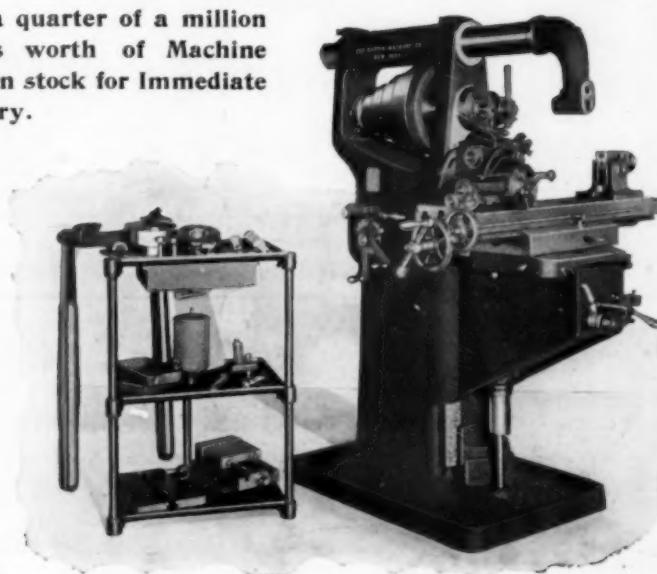
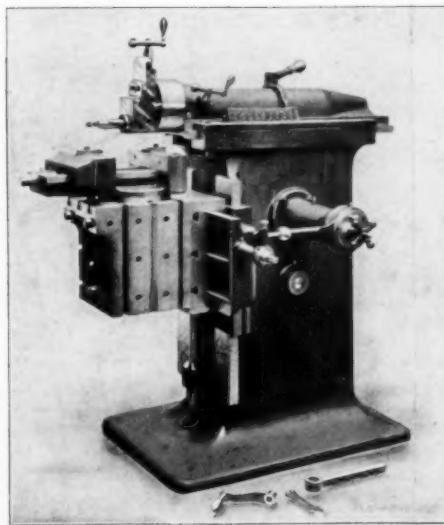
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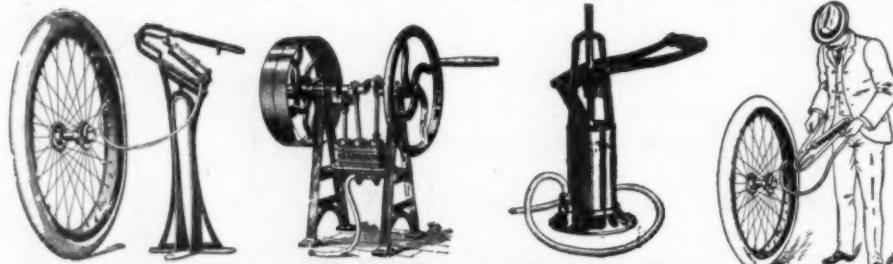
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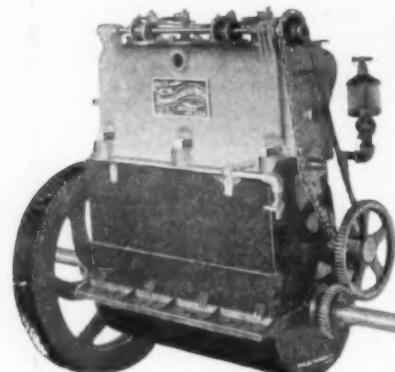
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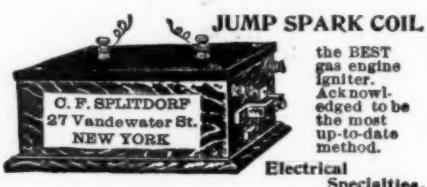
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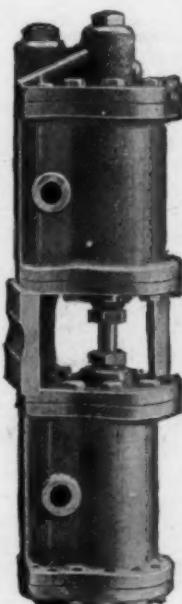


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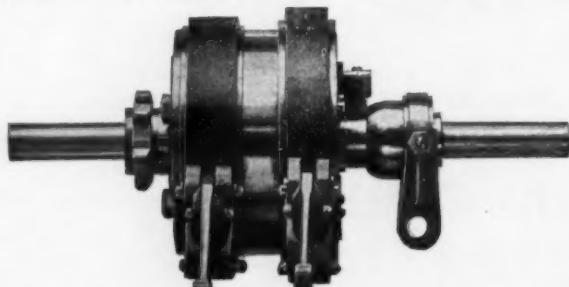
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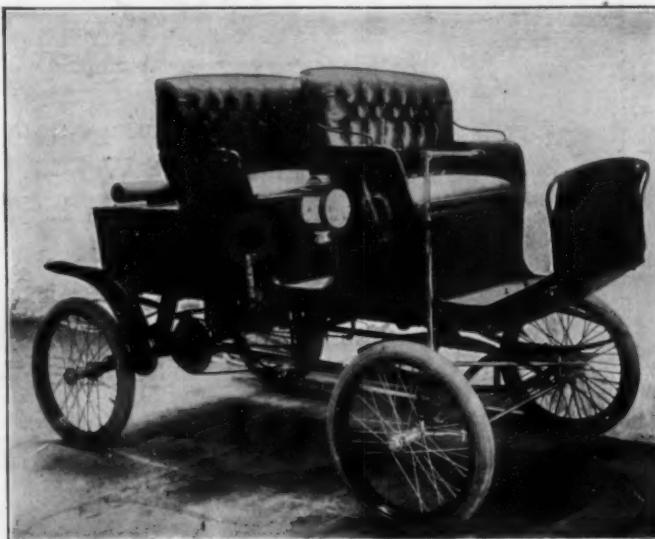
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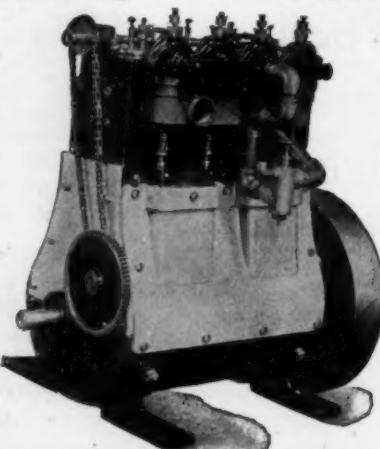
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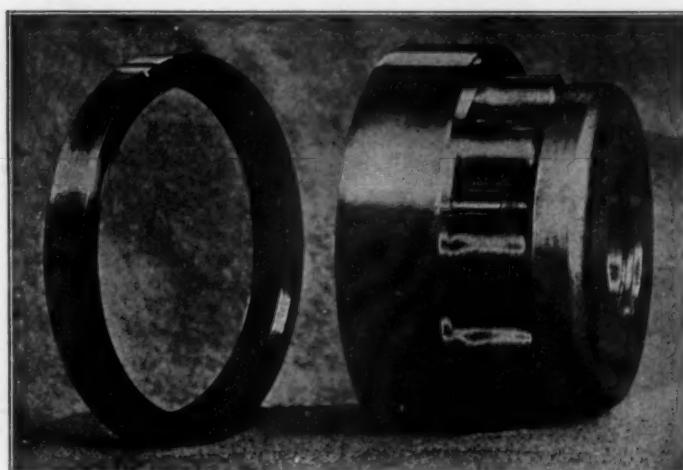
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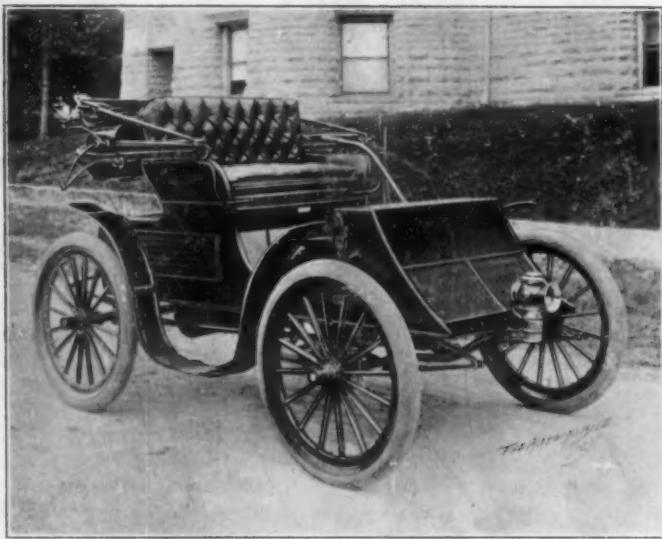
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